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GOOD ROADS

THE ROAD IS
THAT PHYSICAL SIGN OR
SYMBOL BY WHICH YOU WILL
UNDERSTAND ANY AGE
OR PEOPLE. IF THEY
HAVE NO ROADS THEY
ARE SAVAGES. FOR
THE ROAD IS THE
CREATION OF MAN
AND A TYPE OF
CIVILIZED
SOCIETY.

VOL. 7.

JANUARY, 1895.

No. 1.

An illustrated monthly
magazine devoted to
the improvement
of the public roads
and streets



The use of travelling is to
regulate imagination by reality.
—[Johnson.]

And the condition of the roads
cuts a huge figure in the result.

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THE FARMER.

STERLING ELLIOTT
Managing Editor.
12 Pearl St., Boston.



Published
by the

LEAGUE OF AMERICAN WHEELMEN



\$100

WITH RAMBLERS AT A \$100?

What will other makers do,
WITH RAMBLERS AT A 100?
'Twill keep their agents mighty blue,
WITH RAMBLERS AT A 100!
Will people take some cheaper tire
Than "G. & J." — their hearts' desire —
To "boost" the maker's profit higher,
WITH RAMBLERS AT A 100?

There are others, that is true,
LIKE RAMBLERS — AT A 100 —
But none so perfect through and through,
AS RAMBLERS AT A 100.
Will riders buy those cheaper made,
With high list price (for the cutting "trade"),
And pass the "leader" — highest grade —
THE RAMBLER AT A 100?

WE THINK NOT.

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HON. WILLIAM McKINLEY.

"I am much interested in the cause of highway improvement, and I appreciate the good work which is being done by the Good Roads magazine."

WILLIAM MCKINLEY
JAN 10
1900
Wm McKinley

November 11, 1895
18, cont
After March 1895 Consolidated with
P. A. W. Bulletin.

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GOOD ROADS.

Vol. 7.

January, 1895.

No. 1.

"THE MERRY CHRISTMAS TIMES."

By Sterling Elliott.

"At Christmas I no more desire a rose
Than wish a snow in May's new fangled mirth,
But like of each thing that in season grows."

— *Shakespeare.*

THAT man Shakespeare gave many evidences of wisdom, but in the above lines he arose to the dignity of a true philosopher.

He wanted those things which were seasonable and proper, and didn't waste precious time longing for that which was, for the time, unattainable.

The tramp, who in August was looking for work and who assured a would-be friend that he could only work at his trade, and that "his trade was shoveling snow," was no more inconsistent than are many people who are supposed to be much higher up the social ladder.

The man who makes most headway in the practical world is he who shovels snow when there *is* snow to be shoveled, and who beats his snow shovel into a pruning hook for use during the *pruning* season.

It was related of Jay Gould that he stopped one raw December day in front of a Wall-street fruit stand, the proprietress of which was a withered and sad looking woman, who at one time had been in a more comfortable fix.

Jay selected a large red apple from a pile, upon the top of which protruded a battered card, whose soiled face made announcement that "four cents each" was the price. He placed a nickle in the shriveled palm of the humble merchant, who at once began fumbling in the pocket of her faded dress for the odd cent. After becoming reasonably sure that she wouldn't find it, Mr. Gould said, "You may keep the change, my good woman, for are these not the merry Christmas times."

The waving of a just claim like that is but another form of charity, and while GOOD ROADS believes in charity, it does not believe in giving money outright to the poor except in cases of immediate necessity, which certainly did not exist in the case above referred to.

We believe in a systematic "campaign of education" by

which people shall be taught to make the most of their opportunities, and judiciously expend the money they *do* have, however little it may be.

OUR SPECIALTY IS ROADS,

but the same general principle underlying the subject of road economics is applicable to all other lines of human endeavor.

In the wealthy and populous parts of the country where stone and money are both plenty, the regular and business-like building of stone roads is already pretty well started.

But for the remote parts where dirt is legal tender, and where the population is scarce, and consequently there is too little travel over a given road to warrant the more expensive systems,

GOOD ROADS HAS A SUGGESTION

which we can recommend because it has been tried and found to be all right.

When the soft dirt road gets so that it consists of a couple of ruts and nothing else, and it will soon get that way with the narrow tires now in use, don't do anything to it until after you stop and think.

A famous college instructor once said to a class in surgery, "Boys, if you had a case in which the patient had been injured so that death was certain to ensue in three minutes if nothing was done, what would you do?" The boys made several guesses and then the professor said: "Do nothing for two minutes except think; then during the third minute you will be more likely to do the right thing."

Of course when the average farmer sees a deep rut in the road his first impulse, when he has *any* impulse, is to at once go for some mud and fill the rut with it, but this is like patching his pants by sewing on another hole. The ruts should be filled, but they should be filled with something beside dirt.

What *shall* be used is an important question, but if they will omit the soil, any available material will be an improvement, for there is nothing which the farmer has, with the possible exception of rotten apples, that wouldn't be an improvement on dirt.

Gravel, if it can be found within a few miles, will well repay the hauling though crushed stone is better, and either is cheaper than dirt even though it have to be hauled by rail for fifty miles.

Next to a gravel or stone road wide enough for both horses and wagon, is a road with a hard foundation for the wheel, and dirt for the horses to travel on.

Don't fill ruts with the same material which was squeezed out to form the rut, because you know, if you will stop to

think, that the passage of a few wagons will make ruts again, and your time and money have both been literally put in a hole. Don't worry or get scared over the question of raising lots of money to build new stone roads. Don't imagine that it will be a great burden to have country road repairing properly done. The bridge which we have long since come to, and the crossing of which is a live *present* issue, is how to spend *to advantage* the same time and money which is *now spent* instead of *wasting it*, as is too often the case.

"First tie a knot in your thread, so as to save all the stitches you afterward make."

"THE GOOD DIE YOUNG."

There was a man who never told a lie—
But he's dead—
Never said it was wet when the weather was
dry—

Never said
He'd caught fish when he hadn't caught one,
Never said he'd done something that he hadn't
done,
Never scolded his wife, and never got mad,
And wouldn't believe that the world was so
bad.
A respecter of men, a defender of woman,
Who believed the divine, and in that which
was human.
Meek as Moses—he never was understood,
And the poor man died of being too good.
And he's dead.

There was a woman who never had gossiped a
bit—

She's dead, too—
Who hated all scandal, nor listened to it.
She believed in mankind, took care of her cat,
Always turned a deaf ear to this story or that.
Never scolded her husband—she never had
one;
No sluggard was she, but rose with the sun.
Never whispered in meeting, didn't care for a
bonnet
Or all of the feathers that one could put on it;
Never sat with the choir nor sang the wrong
note;
Expressed no desire to lecture or vote.
For the poor soul was deaf as a post—also dumb.
You might have called forever, and she wouldn't
have come.

And she's dead.

—JEANNETTE LA FLAMBOY in *Outlook*.

IS THERE A MORAL IN THIS?

THE bicycle plant of the Lozier Mfg. Co., of Toledo, Ohio, was destroyed by fire November 28. The loss in property was nearly half a million dollars. This loss was bad enough, though it comes out of people who had it to lose. But the worst loss, the loss which will be most keenly felt is that of the employees who lose the opportunity to earn that which they need, and through the employees the loss reaches the local tradesmen, who get most of the workman's money and in turn pay it for the goods they sell, which means that it reaches the pockets of still other workmen who produce the goods, and so on *ad infinitum*.

Here is the item:

"When seen by *Cycling's* representative, Mr. Lozier talked willingly upon the subject of the disaster. 'You may state,' he said, 'that the city of Toledo is entirely responsible for this fire. It would never have happened had there been suitable fire protection at our works. There is only one little bit of a pipe running out there, which I have seen a solitary engine pump dry within three minutes. *Then, too, the road is in such terrible condition that in bad weather it would be an absolute impossibility to get a steamer there.* We had fire walls at our works, and with plenty of water and good roads we would never have burned out.' "

Now suppose the five hundred workmen and the local storekeepers who are directly affected, could have known or believed that unless that road was improved, and a larger water pipe put in, this thing would have surely happened.

Would it have happened?

Well, probably not. Why? Because they would have seen to it that the improvement was made. Why, again? Because it would have been directly in the line of daily bread.

Five hundred workmen at an average wage of two dollars per day would earn six thousand dollars per week. The earnings for the short space of one week would build about five miles of the finest macadam road, over which not only fire engines but all other wheeled vehicles could be hauled with ease, at all seasons of the year. It is probable that before all those employees are again well at work, even if the factory were rebuilt on the old site, enough wages will have been lost to make many times the amount of good road which might have saved all the trouble, and have averted what we can call nothing less than a public calamity.

Instances are not rare where property has been lost through the inability of firemen to get their apparatus over the bad streets. A very notable case in point was that in Erie, Pa.,

some time since, where the direct cash loss, due entirely to bad going, would have paved a large part of the highways of the town.

It is easy to figure these things out when it is "too late," but it should occur to us that it is *not* too late and never will be to make these improvements in towns which are not yet burned, and which are just as liable to burn as were those which did.

Good roads often tend to circumvent death and disaster, but they are a million times more valuable in promoting life, not simply existence, but the kind of civilized life which makes human development possible, and not only possible but practical.

A WIDE TIRE LAW AMENDED.

THE law made by the supervisors of Queens County, N. Y., providing that all wagons built to carry 2500 pounds should be fitted out with tires at least three inches wide, under a penalty of \$20, went into effect October first. Nearly all the great farmers saw at once the wisdom of the law, both on account of the fine highways and the easy running of their loaded teams, and accordingly widened their tires without pressure from the authorities. No one has offered any reasonable objection to the regulation. The rub came in the application of one of the details of the act. Under the original reading the Justice was allowed no discretion but to enforce the law strictly levying penalty at once without mercy, in all cases of violation. It turned out that on October first nearly one hundred arrests were made by the constables, and as many fines imposed by justices of the peace. The majority perhaps of the offenders consisted of men who were ignorant of the provisions of the law, and since they had no criminal intention urged that they should be given a few days, at least, of grace. They would then be able and willing to conform to the statute. Another class consisted of farmers too poor to make the required alterations immediately. But they too stood ready to obey the law as soon as they were able. The last, and by far the smallest number were seized by a fit of stubbornness and took pleasure in defying the authorities.

Accordingly, the supervisors have wisely amended the Wide Tire Law so that the justices may hear and determine all cases of violation of the law. The stubborn and lawless offenders will now be dealt with in a separate category from the other two classes. And the ignorant and poor will be brought under the provisions of the new regime as soon as wisdom deems practicable.

The amendment is a worthy testimonial to the humane character of the Board of Supervisors of Queens County.—*Ex.*

ICELAND: A COUNTRY WITHOUT ROADS.

BY SIGRIDR E. MAGNUSSON.



MRS. MAGNUSSON.

ICELAND is very little known in this country. Most people know that such a place is in existence, but think and speak of it as an ice field, inhabited by Esquimos—in fact mix it up with Greenland. But Iceland has been a civilized country from the beginning. The first settlers were kings and nobles from Norway, who, having been conquered by Harold Fairhair, would not submit to his rule, but in 874 and following years betook themselves with their families and all their belongings to Iceland where they set up a Republic.

The population of Iceland is at present about 70,000, scattered over the island, which measures 40,000 square miles. Many are the difficulties and deprivations which this hard-working, patient people have to suffer, but want of proper roads I think is the greatest.

All communication in the country is effected in summer by means of the enduring, sure-footed little ponies, but in winter partly on foot.

There are no roads in the civilized sense of the word, and consequently nothing on wheels. During the last few years the "Althing," or Parliament, has voted a sum of money (liberal for a poor country like Iceland) for road making. But such is the administration of Iceland, that, though they procured a capable civil engineer from Norway (after having wasted a lot of money by putting the work into the hands of an Iclander, utterly ignorant and incapable, who himself had never been out of Iceland, and, therefore, had never seen an inch of properly made road in his life), the roads were made the same width as the pony tracks were before—just wide enough for two bagget ponies to pass each other, instead of making carriage roads, which, though somewhat more expensive at first, would have been infinitely cheaper in the end—indeed, they would have paid and repaid for themselves, not to speak of the comfort to men and beasts.



RESIDENCE OF THE HIGH PRIEST AT THINGRALLA, ICELAND.

The want of carriage roads and bridges over the many large and dangerous rivers, entirely prevents all improvement of the country. Iceland has many resources which might be developed if not hampered by this terrible want of conveyance.

There is no manufactory of any sort in the country, and yet the Icelandic wool is considered the best in the world and ought to be manufactured at home.

The wool is exported raw, with the exception of what is needed for home use. Every woollen garment woven in the country is spun, woven and knitted by hand during the winter.

These "home-industries" have been of late years exhibited in England, and at the World's Fair, and have received the highest possible awards at each of the last four great exhibitions.

Fishing and sheep farming are the principal industries of the country.

Of late years, England and Scotland have opened up trade with Iceland, which has been of great benefit to the people. Sheep and ponies have been largely exported, as well as fish, wool, cod liver oil, eiderdown, etc. This trade with England and Scotland has, to a great extent, done away with the "barter" system, which had been the ruin of the country for centuries—that is while it was under the monopoly of Denmark.

No grain of any kind grows in the country, so we have to depend on imported bread-stuff. Rye is the staple food, mostly imported from Denmark and Russia. The only harvest is hay harvest, and the haymaking goes on all summer — the grass being cut by scythes. Potatoes and a few other vegetables are raised by most families for the consumption of the household.

The people of Iceland lead a pure, primitive and industrious life, and, as a rule, bear their hardships and numerous difficulties with patience and fortitude. They are law-abiding people, as will be seen by the fact that there are only two policemen in the country, both in Reikiavik (the capital).

Women in Iceland have kept their ancient costume faithfully for eight or nine hundred years, with hardly any alteration. The church dress, or full dress, consists of a black, full skirt, just walking length, embroidered at the bottom in wool or silk; a black close fitting jacket, embroidered in gold, or silver, or silk; a silver or silver gilt belt or girdle — sometimes the belt is embroidered and fastened with a silver or gilt clasp.

The head gear is a white, high helmet-shaped linen cap, with a veil falling back, and a coronet or stars of silver or gold filigree round the head (hiding the edge of the cap). The ancient ornaments are handed down in families.

In former times, when Iceland was a rich country, it was considered an accomplishment for a gentleman to make the silver and metal work beautifully, so they used to make it for their relatives. In this way the large collection of antique Icelandic jewelry, which I have exhibited in the Boston Art Museum, was made, and it has been handed down as heirlooms in different families.

The every-day costume is a plain black hand-spun and woven skirt (walking length), a plain jacket of same material, a large apron, a necktie, and a black knitted cap on the top of the head, with a long silk tassel hanging at the side, falling on the shoulder, and surmounted by a silver ornament. The men in Iceland have given up their native costume long ago — the reason being that they sometimes go abroad to other lands, but the women stay at home.

Sheep raising is a large industry. The sheep are never sheared, but the wool is gathered as the sheep shed it, for to shear the sheep in that severe climate in spring would mean their extermination.

Another important industry is the gathering of the eggs and down of the eider duck. The eider ducks are protected by law, and they are very tame, for no one ever shoots or molests them. Haymaking goes on from July till September.

The last of September the birds of passage begin to fly southward. The golden plover is the most loved of these. His song is imagined to be a song of glory, because the notes

sound like the Icelandic word which means "glory." The children are taught to regard the bird as their especial friend.

In September the sheep are driven into the folds at the public expense and sorted out by their owners. Then the long, dreary winter sets in, and life crouches in the cottages and sheep folds. The ponies are driven out to shift for themselves, because it is impossible to get hay enough for them. At the lower end of the big room the mistress of the house and the children gather about the spinning wheel, while the men card the wool. Silence is preserved in the big room, for there is always one, the best reader, who sits and reads the saga to the admiring family group. The reading of the sagas has done much to preserve the original purity of the old Norse tongue.

The women make the shoes and cut and make the clothes for the whole family.

Religion is enforced in Iceland. The Episcopal Lutheran is the established church.

There are many good schools in Iceland for men, but no educational advantages at all for women. There are Latin schools and medical schools, and the writer has attempted to establish a school for girls, but her money gave out, and for the time she was obliged to give up the idea.

One of the only two policemen in Iceland is a very good poet and has published a book.

OUR CONTENT IS OUR BEST HAVING.—*Shakespeare.*

Upon a crutch, her girlish face
Alight with love and tender grace—
Laughing, she limps from place to place,
Upon a crutch.

And you and I, who journey through
A rose leaf world of dawn and dew,
We cry to heaven overmuch.

We rail and frown at fate, while she
And many more in agony,
Are brave and patient, strong and true,
Upon a crutch.

—*Exchange.*

A NEW USE FOR "WALKING DELEGATES."

EDITOR OF GOOD ROADS:

E *Dear Sir*—Is it within the province of your magazine to advocate the cause of good sidewalks? I think there is almost as much need for their improvement as for the roadway itself; not only in country places, but on the outskirts of cities and large towns, and even in the cities and towns themselves.

I live in the country, and the sidewalk from my residence to the railroad station is in a state that language fails to describe, and yet when I tell my neighbors that I sink just as deep in the mud on the sidewalks in going from the ferry to my place of business on one of the main thoroughfares in Brooklyn, I do not think they believe me. This, however, is a fact, the only difference being that the city sidewalk is not so bad *all the way*, but in places of from 25 to 100 feet each, on about every other block for a distance of 12 to 15 blocks, and on both sides of the street.

My reason for this communication to you is not only for calling attention to bad sidewalks, but also to suggest a possible system for procuring better sidewalks, at least in cities and towns.

We are living in an age of workingmen's trade organizations, and I think they can be brought to bear on this subject. There is some trouble to keep sidewalks in good order under our present political city officers, whose business it is to order it done, they being subject to strabismic disease when walking in front of their friends' property.

I propose that the Pavers' Union take up the subject, and instruct their walking delegates to report at their regular meetings all places in their district that require repairs; then let the officers of the society report to the city authorities and demand attention thereto. This would, as near as may be, destroy political pulls, leaving at the same time each owner the right to employ such help as he may think fit to do the work, complying with the city laws in relation thereto. By carrying out this plan, no good citizen who keeps his property in legal order would complain, and those who do not should be made to do so by enforcing the common laws made for the benefit of all.

Yours truly,

JAMES N. BREWSTER.

Brooklyn, N. Y.

CONCERNING A LIMESTONE ROAD.

BY W. B. PAYE.

WHEN the community I have in mind shies a stone at its neighbor across the imaginary line forming the incorporated portion of the town and calls out, "Come, Rip, wake up," the sleepy village rubs its eyes and says, "Why should I wake up if I want to sleep the calm, undisturbed slumber of my grandparents and great grandparents? Why should I suffer my dreams of petty village gossip and lack of enterprise to be disturbed by such questions as 'Incorporation' and its consequent higher taxation?"

"When that committee of yours met and determined that the traditions of a century past had ruled you long enough, and made you stand up on your feet and *walk*, of what benefit was it to you except affording you the same old-time pleasure of grumbling at the increased tax rate?"

And so, when its stiffened, unused joints began to relax and perform their natural functions, and the town began to move forward, it stubbed its toes and then looked for something on wheels to make the going easier, and when the wheels jolted began to examine the causes thereof and compounded a mixture of common sense and crushed limestone for a remedy, with the result that its present good roads and village streets are a pride to every citizen living within its limits, a pleasure to all visiting drivers, a veritable magnet for wheelmen and a new lease of life to the horses, which have enough steep grades to contend with—a characteristic of all Hudson River towns—without the added burden of an ordinary, common, heavy dirt road.

As in all questions of road improvement and maintenance the cost is the first item for consideration, and in this case has passed the estimating stage into an actual fact of several years' duration.

Towns situated at no great distance from a limestone quarry may well take as an object lesson the excellent surface of a well kept limestone road, and for those interested in the subject the following figures are briefly submitted:

The road bed, ten feet wide, is first covered to the depth of two inches with finely crushed limestone at a cost per mile of \$570, the average haulage distance being one and a half miles from railroad station. If the road bed is naturally hard, a layer of stone even less than two inches in thickness will answer.

Every year from one inch to one and a half inches of finely crushed limestone is added, and in little over a week the ordinary every day traffic of vehicles grinds it to absolute smooth-



A LIMESTONE ROAD IN A HUDSON RIVER TOWN, MADE AND MAINTAINED AS DESCRIBED.

ness. As everyone knows, limestone possesses natural cementic qualities, and for a road of this description it is almost imperative that, to secure the best results, the surface be kept sprinkled. This is accomplished by an ordinary sprinkling cart, horses and driver at a cost of \$80 per month.

To maintain a road of this description averages for the season a total cost of \$165 per mile, surely an item of exceedingly small proportions compared with the results obtained.

Of course, the old fashioned way of letting the roads take care of themselves, after the customary spring pottering, will not do in this case, so the services of two men are engaged to attend to the roads the entire season, an important bearing upon the final economical showing of the total cost of maintenance.

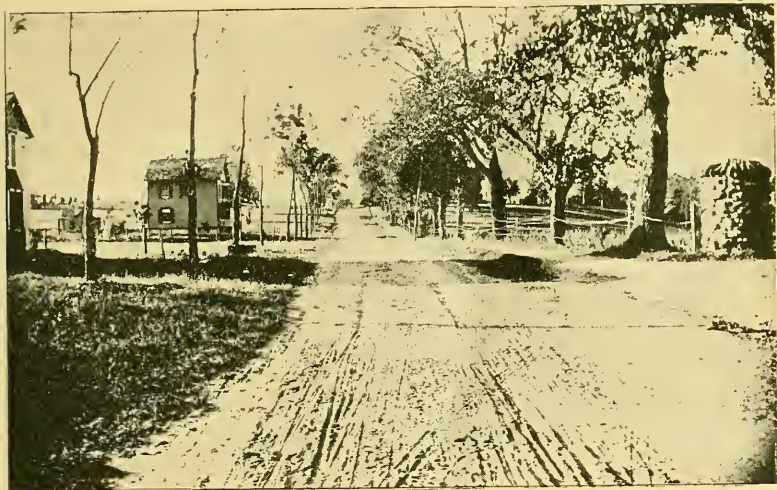
In the adjoining district the roads are "worked" by assessment, or, rather, they are supposed to be; at any rate a wheelman, especially, will find that some cause, evidently of an earthquakey nature, has upheaved the surface of the road into a miniature range of Rocky-mountain roughness, over which bump the wheels of the anti-good-road rusticus.

Let us stop and hold with him a little conversation on the subject:

"Why doesn't he have better roads in his district?"

"Because better roads mean more expenditure."

"How many wagons does he own?"



THIS PHOTOGRAPH WAS TAKEN WITHIN FIVE HUNDRED FEET OF THE ONE ON OPPOSITE PAGE, BUT THE ROAD HERE SHOWN IS WORKED ON THE "ASSESSMENT" PLAN. IT IS A PART OF THE SAME ROAD AND HAS THE SAME TRAFFIC.

"Oh, three or four."

"How often are repairs necessary?"

"Once or twice a year."

"How many wagon shops does his town support?"

"Two; employing on an average five or six men the year round."

"What is their principal work; building wagons?"

"No; wagons can be bought of western manufacturers cheaper than they can be made here. The wagon makers' work in this district is principally repairing."

"What makes repairing necessary?"

"Bad roads."

"How many harness makers does your town employ?"

"Three."

"Is their work mostly repairing, too?"

"Yes."

"Well, my friend, did it ever occur to you that if the community in which you live can support, the year round, eight or ten men whose business seems to be patching up wagons and harness, which are broken by something you can remedy by applying part of the money paid to them to the cause of the breakage, viz., bad roads, that you really would not be financially any worse off than now, and a great deal better off so far as wagon wear, horse flesh and increased carrying capacity is concerned?"

"Maybe so, but these roads were good enough for my

grandfather and I guess I'll live through 'em. Will I have a cigar? Yes, thanks; I never refuse anything I can get for nothing. Good day; be sure you take the right-hand road; because the left-hand one leads to nothing a mile or so beyond; every stranger gets fooled on that. Sign board!! Who's going to pay for one? Some one would be stealing it for fire-wood before night, anyway."

Poor man! and only one among a multitude! What kind of signboard will best answer the purpose in his case?

[The steel helping hand of the L. A. W., of course.—ED.]

DRAW THE LINE.

If you've loaned a friend a "fiver,"
And you think him all correct,
But it's longer in returning,
Than you really could expect,
When next that fellow comes to borrow,
Though your purse be rolling fat,
I would venture this suggestion,
"Better draw the line at that."

If, perchance, you're in a quarrel,
And resort to fistic blows,
Do not boo-hoo like a baby
When he hits you on the nose;
Boldly stand your ground, young fellow,
Stay until he knocks you flat,
Then if my advice is needed,
"Better draw the line at that."

Just suppose you've been a fishing
Patiently from morn till night,
Though you've tempting lively minnows,
Not as yet a single bite;
All at once your cork goes under
Out of sight as quick as "scat,"
should think that you were foolish
Not to "draw the line at that."

— [REED.]

THEY OBJECTED TO GRADE CROSSINGS, AND ARE
NOW IN JAIL.

A CROSSING war in Massachusetts has had serious results for some of the participants. The executive council of the State government has decided that the officials of the Old Colony Railroad who took part in a struggle to prevent a street railway track from being laid across their line at North Abington in August, 1893, resulting in a serious riot, must serve out in jail the sentences imposed upon them, as follows: Superintendent J. C. Sanborn for four months, and C. S. Bailey, railroad police officer, A. L. Fraser, foreman of the corporation's blacksmith shop, E. H. Bryant, section roadmaster, and John Bolen, section foreman, two months each. The action for which these officials were found criminally liable was taken under the advice of the attorney of the New York, New Haven & Hartford Company, to which the Old Colony belongs, but the legal adviser has immunity while his clients have to be punished for following his directions. The action of the local and State authorities in this matter is extraordinary. At the trial of the case in a local court the accused officials seem to have made no defence, relying on the legal adviser who got them into trouble to get them out of it, and it being taken for granted that if a verdict was found against them the penalty would be a fine, which the company whose work they were doing would promptly pay.

When the severe verdict of imprisonment was announced, every effort was made by the highest officials of the road to have it commuted, and when the court declined to temper justice with mercy, the State authorities were earnestly urged to interfere. But the pardon committee refused by a vote of three to two to advise the exercise of executive clemency, and the executive council refused by a majority of one even to allow pardon to be extended thirty days after sentence had been pronounced. So it seems that Superintendent Sanborn and the other reputable citizens who have been declared criminals for doing what they considered their duty in protecting the property of their employers, must go to jail like intentional and dangerous law-breakers. It may well be doubted whether any good effect upon actual criminals will be produced by this hard judgment. At any rate, it will not make the prisoners into criminals in the eyes of those who know and respect them, nor injure their reputation among fair-minded people.—*Railway Age*.



THE DOVES OF SAN MARCO.

VENEZIA.

THE DRY SIDE OF IT.

BY "LE BERT."

IN the November issue of GOOD ROADS I made a few remarks about the "streets" of Venice, which remarks were duly commented on by the editor. I desire to make an explanation this month which my modesty forbade before.

It is well known that our genial editor of GOOD ROADS has at heart the welfare of cycledom and humanity as applied to pedal extremities, *i. e.*, when it comes to walking or driving. It is *not* well known that our genial editor ever visited foreign climes to preach the doctrine of good roads. It is also *not*



known that our editor once visited Venice, and in the fullness of his heart preached the good doctrine of good roads to the enterprising Dagos of that famous village.

I am sorry to state that the result was not a very glowing one. In fact it was a flat failure, and after our editor had wept a few crocodile tears, he hunted up a secluded spot and wept in sorrow and seclusion. But note! He did not forget that latent spirit of advertisement in his sorrow, but borrowed a pair of well worn and well patched shoes and lay himself down to rest and (incidentally) displayed his advertisement of the poor roads of Venice to good advantage. It was then that I photographed him as shown above.

This is my apology.

Venice has some very fine streets which are not wet. In fact, a traveler can pass over and see the entire city by means of



VENEZIAN'S POUNDING FISH.

various back streets and about 480 bridges. These streets are paved with flags or blocks of a sort of freestone, and are unique by the fact that there are no curbs, gutters or sidewalks. As horses are unknown in Venice, you have the entire street yourself, and were they not so narrow you could safely use a bike and make a beautiful run without fatigue over an even surface.

One day as I was passing along one of these boulevards (about six feet wide) I saw an interesting sight. I noticed three men pounding fish that looked like mackerel, on a stone pillow with a wooden mallet. Their stroke was in succession like blacksmiths working iron, and by the time they got through with the fish he looked very flat indeed.

By means of a great many signs and a large quantity of

gall I managed to learn that this was a method of preserving fish. They pounded out all juices and reduced the flesh to a pulp, and afterward packed them in air-tight boxes with salt, where they remained fresh for a considerable period.* It is not necessary to pound the average dago in this manner to keep him fresh. He is born fresh, and remains that way until he dies an unnatural death from being too fresh to some strong armed American.

San Marco place just opposite the famous San Marco Church is known to history for its tame doves. These doves are a fixture of the place, and cause the bread venders of the neighborhood to reap a harvest of centimes from unsuspecting travelers. My own experience is represented in the cut.

These doves are extremely tame, and any stranger who will invest a centime or two in bread can have the whole outfit on his head and shoulders if he will only distribute the bread to the doves. They are beautiful creatures with white and gray glossy plumage and large appealing eyes. In fact they are as good beggars as the Italians themselves.

You will find them here at all seasons of the year perched on the old Bell Tower waiting for a sucker whom they may bleed.

Thus we have a few more arguments to support the statement that GOOD ROADS are not needed in Venice. I am sorry that the editor's mission as to subscription list was a failure, but as an advertisement of GOOD ROADS he was a success. His photo (though obscured by his hat) is hereby published for the first time, and was often spoken of by the Venetians when they dunned me for a nickel for something to drink. In fact, they spoke in endearing terms of him, but lamented the fact that he forgot to leave the shoes he borrowed.

[*Our admiration for the people of Venice is at once increased by the statement here made, that they are able to keep things fresh by packing them in salt. Please observe that this remarkable discovery was made by the man who is feeding the doves, and *not* by the one who is under the hat.—Ed.]

“There is nothing steadfast in life but our memories.”

PNEUMATIC VS. STEEL TIRES.

RESULTS OF TESTS MADE BY STERLING ELLIOTT TO DETER-
MINE THE RELATIVE RESISTANCE OF METAL
AND PNEUMATIC TIRES.

TWO box buggies were employed, one having the usual steel tired wheels, 44 and 48 inches in diameter, and weighing 254 pounds; the other having pneumatic tired wheels, 32 and 34 inches in diameter, and the vehicle weighed 232 pounds.

The cross diameter of the tires was 2 inches.

An amount of weight equal to the difference was placed in the lighter vehicle, and care was taken to see that the front wheels of the two vehicles bore exactly the same weight.

The surface upon which this first test was made was a new, hard pine floor, which was as smooth as such a floor could be, and the wheels were drawn lengthwise of the boards.

The amount of power required to move these vehicles under the following conditions was carefully noted by means of a registering spring balance, which was attached alternately to the king bolts by means of a long cord.

In each case several tests were made, and when all did not exactly agree, owing to slightly varying conditions at different points on the tire, we took the average pull.

The same tests were made with the vehicles empty, and afterward when they were loaded with 300 pounds each.

It was found that the power required to start the pneumatic tires from a standstill was 4 pounds, and the power required to haul them at a slow walk was 3 1-2 to 4 pounds.

The power required to start steel tires was found to average but 3 pounds, and when started, the power required to draw them was but 1 1-2 to 2 pounds, showing an average difference of about 50 per cent. in favor of the steel tires.

Next, an obstruction 5-16 of an inch high was placed in front of and against the wheels of each vehicle. To haul them over this obstruction from a standstill required, in the case of the steel tires, 25 pounds; with the rubber tires, but 11 pounds.

Then they were drawn at a slow walk over the 5-16 obstruction, and it was found that the power required to draw the rubber tires was 5 pounds, and the steel tires, 8 pounds.

An obstruction 7-8 of an inch high was placed against the wheels, and the power required to haul over it from a standstill was as follows: Rubber tires, 24 pounds; steel tires, 44 pounds. At a walking speed the power required to go over the 7-8 inch obstruction was 16 pounds for the steel tire, and 12 pounds for the rubber tire.

The two carriages were next loaded with 300 pounds each. It was then found that the power required to start the rubber tires on the smooth floor was 8 pounds, and to haul at a slow walk required practically the same force. To start the steel tires, loaded, required 12 pounds, and to haul at a walk, 4 pounds.

The 5-16 inch obstruction was then placed in front of the wheels, and the power required to haul over it was 13 1-2 pounds for the rubber and 40 pounds for the steel tires.

Over the 7-8 inch obstruction the power required to haul the two loaded carriages was 36 pounds for the rubber, and 69 pounds for the steel.

The two vehicles were then taken out of doors and placed on a fairly good gravel road.

The power required to haul the rubber tired vehicle, loaded, 300 pounds, *averaged* 20 pounds, and the extreme power required at any point was 26 pounds. With the steel tired vehicle, over the same road, the average was 41 pounds, and the extreme, 79, or three times the resistance of the rubber.

To haul these two carriages *empty* over a moderately sandy road, the extreme power required for the rubber was 26 pounds, the same as when loaded on gravel, with an average of 16. The steel tired vehicle required an extreme of 40 pounds, and an average of 22.

With a load of 150 pounds, the steel tire required an extreme of 57, and an average of 40; and the rubber an extreme of 38, and an average of 16.

After these tests had been made over this particular piece of road, the rubber tired vehicle was again tried, empty, and it was found that the hauling of it six times over the road had so improved it that instead of the extreme pull of 26 pounds, and an average of 16, the extreme was but 16, with an average of 8.

These tests demonstrate conclusively several things:

First—That if we could have a perfectly smooth track, a pneumatic tire would be a decided disadvantage so far as the horse is concerned, and of course it would be of little use to the rider.

Second—That on roads as we find them the draft is reduced about one-half by the use of pneumatic tires, thus enabling one horse to do the work of two on level roads; on hills the advantage would be less.

Outside of these tests, it is well known by all who have tried them and must look reasonable to those who have not, that the pneumatic tire makes a carriage last much longer. (Whether they actually prolong the life of the rider I am not prepared to say, but I have ridden on them enough to know that they must tend to a higher standard of morality at least,) that they will

pass over a railroad track, at any angle, without having a tendency to slew, and that they increase the comfort of passengers very much.

Last, but by no means least, the pneumatic tire actually improves the road at all times and in all sorts of weather.

It is perhaps too much to hope for, but if a time might ever come when all tires used were of the elastic variety, it would have an effect on the cost of road maintenance which would go a long way toward paying the additional expense of such tires. To this add the saving in draft and wear and tear of vehicles, and a general revolution might be expected.

It is not best to count too much, however, on the vehicle user to take a direct interest in the economy of road maintenance. He will usually do that thing which seems to be most to his personal advantage at the time he takes his observation. Hence I advocate the passing of laws which will so adjust the tax on wagons that their owners will find it to their direct personal advantage to do what is best for the road.

\$40,000 FOR MUD.

THE present condition of some of the streets within the city limits has awakened a new interest in the subject of good roads, and a prominent manufacturer showed a reporter this morning a petition which he is circulating with a view to creating a reform in the manner of caring for the streets in the city.

Franklin street and Main street in the vicinity of Elmwood Park are pointed to as spots where reform is needed. The manufacturer said that the taxpayers of this city would heartily endorse any such reform as the one proposed, and that several well known business men had already assured their support.

One of the things to be advocated is the use of crushed stone for the purpose of street repairing in place of mud.

Since 1890 nearly \$40,000 has been expended by the city for the repair of dirt roads.—*Danbury News*.

Every philosopher is cousin to an atheist.—*A. de Musset*.

Love places a genius and a fool on a level.—*Presset*.

DINGLETOWN.

A PLACE WHERE NATURE MAKES THE ROADS.

BY STAMSON.

IT will not be surprising if the majority of GOOD ROADS readers do not know just the location of Dingletown, for, had it not been for cycles and their happy riders, its charms would have remained unsung—except in bird melodies—its pretty byways been unexplored, and these particular lines never written.

It was way back in the days of the good old ordinary, as we are in the habit of saying, that the pure amateurs of the Solitary Club used to enjoy jaunts over the saw-teeth hills to Dingletown.

Where is it? Oh, up back of Steep Hollow, in the region of Cognawaugh and Stanwich—pronounced “Stanige” by the natives.

Now you know where to find it. You would know it by the tall rye and timothy that nods and peers at you over the stone walls by the way, and by the golden wealth of sunflowers that bend and beckon to you in the breezes about the old farm-houses, and by the great orchards that are so lavish of their good things every season.

The old residenter told us that the local name was acquired from the fact that every member of the lowing kine family carried a bell strapped to their necks as they roamed in unfettered freedom over wooded hills and through bosky dells.

The Dingletown roads, though, were something to see, and so sinuous as to be almost past finding out. They were only cow paths of a larger growth, as the club's pretty new members would have said, for they led in any direction they happened to, in apparent efforts to dodge big rocks. The roads were of common dirt, of course, and were seldom “worked,” as all nature was only just over the fence, and she was supposed to give them all the care necessary. At midsummer they did have a few sods and some dry dust piled on the washouts in the worst places, which in most cases made the goin' worse, and we got in the habit of giving thanks that the farmers placed as much of their road-work burden on nature as they did.

How the denizens of the quaint old way-back place used to stare at our big, full-nickled wheels, as we glided silently past their weather-browned homes.

At one house in Bible street an old lady was heard to say: “Well, thar! That's the first one o' them things I ever saw.” Just why that section was ever called Bible street was a puzzle

to us, for on our first trip through there we heard a shocking tirade of profanity from one of the open doors of a house, and the incongruity of the name was patent to all, and it haunts us still.

The wheels after that seemed to run more swift and noiselessly by that dreaded house, as if it might be a pest house of some sort, and we imagined it peopled with imps of darkness with long nails and teeth, tangled hair and cloven feet.

We easily fancied a blight hung over the place, that doubtless made the apples bitter, and the flowers to lack sweet fragrance and bright colors.

Aside from that one black blot upon the almost unknown character of the Dingletonians, we had good impressions of them, and revelled in the quaint pastoral scenes we rode through. At other houses we met a mixed smile of wonder and welcome, and the cool water from the deep wells was grateful to us as the days lengthened and the heat strengthened.

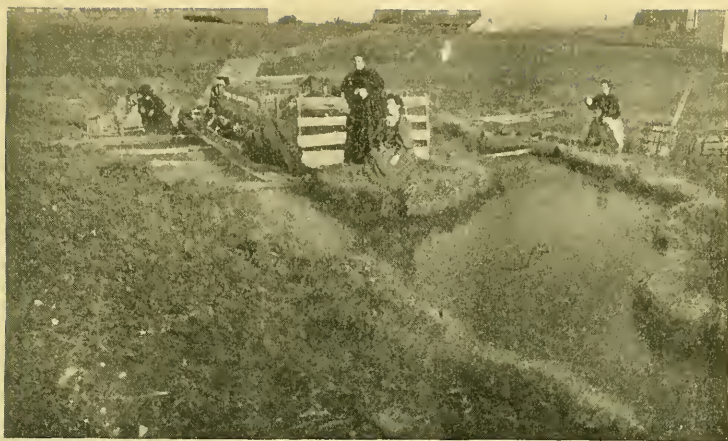
How the birds sang and the squirrels chattered and scampered as we wheeled through their shadowy haunts on that wooded lane, homeward bound. It can safely be inferred that we halted on rustic bridges to listen to what the falling waters of the little brooks were saying as they crossed under us on their way across lots down to the salt waters of the Sound.

The club's imaginative secretary often pointed out alleged camping places, where in the long ago the dusky owners of these sunny landscapes had spent the night, or built council fires, or had a village.

It seemed no trouble at all for him to locate exactly scenes of love or the chase in connection with the brown roamers whose habitat this was so many moons ago, and we used to let him go on with his stories to his heart's content, for he never wove into them anything harsh or cruel; they usually wound up with a harvest dance and feast by moonlight, Pequot nuptial ceremonies, pleasant birch bark canoe voyages to fairy hunting grounds, where the poor Indian found no cold winters, no hunger, nor thirst, nor pale-faced interlopers to annoy or make him afraid.

But these roads are to this day in *statu quo* we found them in the old days, for I took a select party over them only last September and found many of the old familiar washouts, some of which had been half-soled with sods, and many bare and snaggle-toothed, as if with jaws open ready to snap at every rubber-shod wheel passing.

Why, sirs, I doubt if the whole of the twentieth century will be time enough for them to work up to a state of even decent roads in Dingletown.



HUNTER'S HOT SPRINGS.

BY MRS. JULIA H. EMERY.

EARLY in August, 1864, an emigrant train slowly made its way via the Big Horn towards Virginia City, lured by the dull, metallic lustre of the precious nuggets thickly imbedded in the ruby bed rock or mingling with the crimson sands of all the mountain streams.

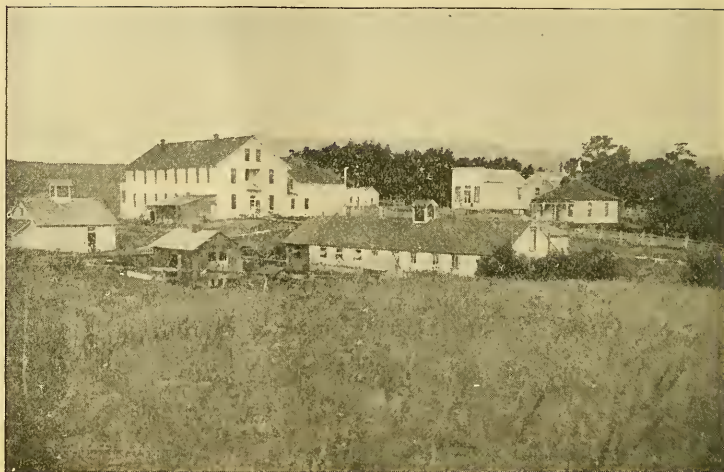
Wearied with travel, the drivers urged their patient ox-teams on over the dusty way. Slightly in advance rode a horseman, his rifle unslung and his eyes sweeping the landscape in search of game.

The setting sun, like a great fire-ship, was floating low in an amber sea, through which crimson-crested billows rolled and harmlessly broke, in a flood of rosy light, upon the snow-crowned mountains, whose precipitous sides formed the enviroining walls of a wide basin or mountain park, lying 4480 feet above the level of the sea.

The surface of the park was broken by gently undulating flower-strewn hills, and cut by the foaming waters of the Yellowstone, impetuously rushing from its canyon home to join the great Missouri.

A gradual descent of some 285 feet above the river, brought the lone rider face to face with a picture at once startling and unexpected.

Here and there, before his astonished eyes, soft clouds of vapor arose from springs of hot water; silent and ghost-like they seemed to wave and beckon and point into the pellucid depths of the boiling pools, while faint, sulphurous gases impregnated the atmosphere.



HOTEL AND BATHHOUSES SPRINGDALE.

In close proximity to these thermal springs were unnumbered tepees or wigwams, showing by their distinctive markings that Indians of many diverse tribes were dwelling together in perfect harmony; Crows and Bannocks, Cheyennes, Piegons and Sioux, all united by the tie of human suffering; all feuds forgotten in the search for the waters of life with which to avert the common doom — disease and death.

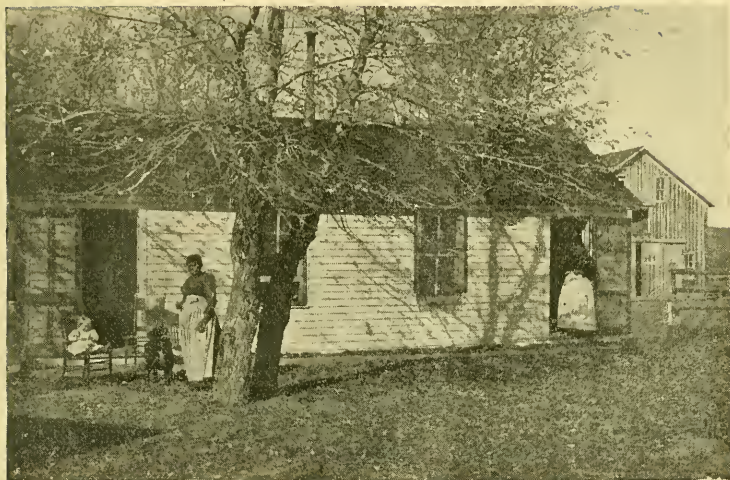
Sore-backed ponies, released from their loaded travois, fed upon the sweet, fresh grass; wolfish dogs pricked up their ears and barked; Indian "bucks" with long black hair falling round faces that shone like bronze paused from throwing sacred beads into the springs to make "big medicine," and looked askance at the traveler, as he gave the Indian salutation, "How?"

Within the lodges dusky squaws crouched around small, smouldering fires, preparing food and paying little attention to ailing infants that blinked their bead-like eyes in the curling smoke.

The traveler was Dr. A. J. Hunter, and either because he was a "medicine-man" or from other reasons, known only to themselves, he was permitted to remain for a week in friendly relations with the Indians.

For years he had been a sufferer from acute eczema, which had been pronounced incurable by his brother physicians.

Seven days he bathed in the waters, when, like Naaman the Syrian, "his flesh came again like unto the flesh of a little



HOT SPRING COTTAGES.

child," and he was healed. So almost miraculous seemed his cure that he felt as if he had indeed discovered the long sought fountain of life and youth bubbling up from the innermost recesses of the earth, and he determined to become the possessor of these thermal springs, the importance of whose constituents he had immediately recognized.

This determination he carried into effect in 1870 by returning and taking the land upon which the springs are located as a homestead.

For six years his claim was contested, but ultimately decided in his favor by Secretary of the Interior Kirkwood. Prior to this time, however, in spite of almost constant danger from savage depredations, the doctor had brought his family to the springs, where his children, whose infant minds were filled with the terms, "jump a claim" and "file a claim," endeavored to establish their father's right to the land in a manner peculiar to themselves. Having no file, they spent much time in "jumping" over a large petrified log. Portions of this log still remain, though the major part has been carried away by specimen hunters.

The entrance to an underground way, leading from Dr. Hunter's cabin to a place of refuge in times of peril, is also pointed out, while the story of vicissitudes and danger experienced during Indian troubles sounds from the lips of his daughter like a thrilling romance of Western life.

The springs, at the time of their discovery, were, counting



BOILING SPRING AND SNOW CAPPED MOUNTAINS IN SIGHT OF EACH OTHER.

large and small, some twenty in number, varying in temperature from 148 degrees to 160 degrees Fahrenheit. Since that period they have increased both in number and volume, welling up from clefts in the rock until the aggregate outpour is now 15,000 gallons per minute. Occasionally the rocky vents will be broken and enlarged by some subterranean throes of Nature, whose silent workings are little understood by man.

The project of forming a health resort of the Springs was not put into execution until 1884, when a small frame hotel was erected, together with rather primitive bath houses containing tubs, plunges and vapor baths: the water of the three largest springs only being utilized for this purpose.

A few years later, owing to the failing health of Dr. Hunter, the sanitarium passed into the hands of C. B. Mendenhall, who enlarged the hotel, improved the plunges, and built a summer swimming pool 105 feet square by from 7 to 10 feet deep; issued circulars and invited public patronage, but like his predecessor did not seek to largely advertise the Springs as a health resort. The wonderful efficacy of the waters, however, together with the genial, cordial manners of the host, brought the lame and halt and helpless from many quarters of the globe, taxing the limited capacity of the hotel to its utmost, and ninety per cent. of all who came, returned restored — free from rheumatic pain and all diseases of the blood. Now, just thirty years from the discovery of these wonderful thermal waters, they have again changed hand, and whispers are floating in the air of a new and elegant hotel to be built in the near future, a hotel with all



WARM SWIMMING BATH.

the modern improvements demanded by a first-class sanitarium, and capable of accommodating not only those who desire, like Ponce de Leon, to drink of the waters of life and live forever and ever, but the tourist and pleasure seeker, the angler and sportsman as well. Here he may rest on his way to and from the coast or the National Park or other points of interest lying within easy range.

Should such a hotel be erected at Springdale, it would meet a long-felt want. Springdale lies almost midway between St. Paul and San Francisco. It is on the direct route to the National Park, and may be reached by either of two great transcontinental routes, the Northern Pacific and the Chicago, Burlington and Quincy, with courses so divergent as to in no way conflict. The tourist can take his choice of viewing by the Northern Pacific the prehistoric battle ground, where the elements waged war eternal, till water conquered fire, leaving the "Bad Lands" blackened and burned, upheaved and torn, with here and there a signal smoke from smouldering fires to tell the story of stupendous conquest. If he prefer to visit Omaha, that wonderful Western metropolis, he finds upon the Chicago, Burlington and Quincy a scenic route of unparalleled beauty, passing through Wyoming and the Crow Agency, the latter, the very garden spot of Montana, with its high, protecting mountains and broad, fertile valleys, watered by cold, sparkling streams.

Since this land has been thrown open to settlers, and the

severe drouth of the past summer has opened Eastern eyes to the desirability of irrigable lands, this country will doubtless soon be settled by agriculturists tired of uncertain results from natural rainfall.

In speaking of these railroads, one can only say, "There is no disputing in regard to taste," and, as in Italy, all roads lead to Rome, so of these two routes, both lead to Springdale, whose bubbling waters softly call, "Come to the fountain, drink and live, drink of the water of life."

"Wine colors the face to prevent the appearance of modesty."



A WILD AND WOOLLY TONSORIAL ADVERTISEMENT.



A STRONG OBJECT LESSON.

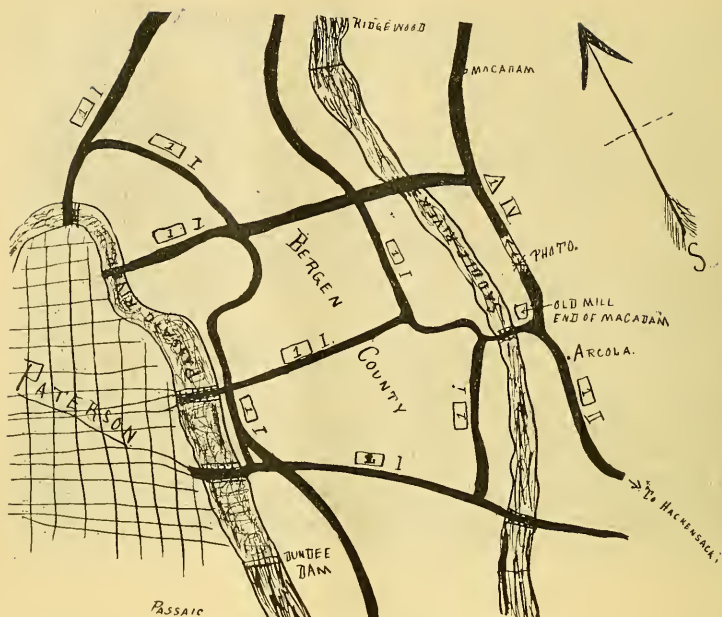
PATERSON, N. J., Nov. 27, 1894.

EDITOR GOOD ROADS:

Dear Sir—I enclose a photograph of a road. I do so because I know you are constantly on the alert for such beautiful specimens of the roadmaker's art. I also enclose sketch of locality, so that you can appreciate the matter to the utmost. This strip of road is about two miles long, and when one comes upon it suddenly from the finest of fine macadam, if there was not a fair side path, it would discourage the most ardent "pedal-fanner." You will notice the rut most prominent in the view, which I found by actual measurement to be ten inches deep on the average. The material of the road is Bergen County sand.

While the views surrounding this particular strip of poor roadway are extremely pleasing to the tourist, the condition of affairs under his wheel preclude the possibility of enjoying the same. In conversation with an elderly lady, in front of whose home I poised my camera, I learned that the condition of this thoroughfare had been as you see it for many a long year, and in the rainy season it is a "sticker" for even the best of teams.

Going out eastward from the city of Paterson, one bowls merrily along over smooth macadam until the bridge indicated in the sketch is crossed; then comes the scene before you, which, but for the side path referred to, would be utterly



impassible by wheel. Traversing the two miles, one again finds good macadam, and appreciates it fully after such a road.

Taking into consideration the fact that it is a very important highway, and that Bergen County has been almost entirely macadamized during the past two years, it is a remarkable thing to find such a bit of primitive roadway so near to a large city.

CHARLES F. GOKEY.

[Two miles of bad road surrounded by many miles which are of the best, is an object lesson which impresses the traveler, but the object lesson that comes right home to the farmer is the one mile of good road he comes on to after struggling through many miles of sand or mud with half a load. And while rolling easily along the smooth surface, the working of his own mind will do more to solve the road problem, so far as he is concerned, than would volumes of theory. These "sample miles" are being built in many places and with most encouraging results.—ED.]

MORE ROAD EDUCATION WANTED.

BENJAMIN P. WARE.

THAT the subject of good roads is interesting people in all parts of the country is not surprising, considering what loss of energy, comfort, time and money is sustained by all classes on account of bad roads, or at least roads not nearly as good as they might be even with the appropriations made by towns and cities for building and sustaining public highways.

That the several systems now in vogue, experience proves to be unsatisfactory, expensive and bad there is no doubt.

Most of the loss sustained in maintaining roads is from want of knowledge as to the best methods.

Commissioners should be appointed by the several State governments, composed of men of the highest scientific and practical attainments on the subject, and by their reports, lectures and other means give public instruction, and to local road commissioners, and whose duty should be to examine different localities and advise as to the most practical and efficient means of improvement in each locality, as different conditions and requirements need different methods of building and repairing roads.

The practice of many towns in allowing all who wish to work out their highway tax is but little better than highway robbery.

The use of road machines while apparently doing a large amount of work do not do the *best* work as they do not discriminate in the material applied in grading the road, for they scrape up what happens to be at the roadside, which is usually loam or sand, that in wet weather makes mud and in dry weather dust, and soon finds its way back to where it comes from.

Doubtless a macadamized road is the best, but the cost makes them impractical in some States, except in cities and main streets of large towns.

In most towns of Massachusetts we fortunately have abundance of good gravel that with judicious use of the highway appropriations (generally too meagre) would make very much better roads than we have, but too often material wholly unfit is used because more cheaply and easily handled.

There is no way by which money can be expended to better advantage than by putting in tile drains in the centre of the roads, particularly where there are springy hills or a moderate descent, and emptying into a culvert at the lowest points. It is surprising that this plan is not more generally adopted.

Our fathers of seventy-five or a hundred years ago built long lines of turnpikes straight over hills and along valleys. It has since been ascertained that it is often nearer round a hill than over it, and affording an opportunity for a comparatively level road.

It has been suggested by many that the general government should build the principal highways in a thorough manner "to save the expense to the people." But when it is considered that the people are taxed in some way to meet government expenses, and that our general government does work in the most expensive manner for the ends accomplished, it may be well to look at this scheme from a more economical standpoint.

It is believed that with the amount of money annually appropriated for highways, if intelligently and honestly expended, our roads should be infinitely better than now, and this would lead to a recognition of the great comfort and advantage, to all classes, of good roads, and thus encourage greater appropriations to meet the demand for still more improvement. Hence the need of more knowledge in road building. |

Well, could you blame 'em?



"It is the wheelmen who want better roads."—*Exchange.*

SUGGESTIONS FOR ROAD AGITATORS.

BY C. D. CHAMBERLIN.

IF one were to go into almost any section of the country and inquire of an inhabitant the condition of the roads, he will almost invariably inform the questioner that they might be better, and yet ten chances to one he never gave an hour's serious thought to the practical question of their betterment.

It is true that many of our more progressive men are agitating the question through scientific and popular journals and periodicals like *GOOD ROADS*, especially devoted to this mission, but the great mass of the people have hardly considered the subject yet. But this condition can not long remain, for the constant effort that is being made through the press will at last take hold upon the people.

When a deer is startled from his fastness, his first idea is motion, then direction; the first a matter of emotion, the second a matter of judgment, if we may ascribe such a function to an animal. Soon the emotional stage will take possession of the people, which will soon become an impulse and will then call for formulated reasoning for guidance. At this stage the question of how to get at it is of practical importance, and probably the local surroundings will have much to do with its successful answer.

The worse the condition of the highway, the easier it will be to awaken interest, and probably the greater will be the material support.

The natural steps to be taken at any time and in any place are probably four in getting at it.

First, to awaken interest.

Second, to enlist support.

Third, to organize effort, and

Fourth, to direct procedure.

In awakening interest it is first necessary that the agitator be more or less familiar with the history of road building, of improved roads, and the advantages accruing by reason of good roads both in a social and a pecuniary way.

The acquirement of a sufficient knowledge of these matters to be interesting will not require any very extended study or preparation, and even though the information may be exceedingly perfunctory, yet the prospect of advantages of any kind will excite sufficient curiosity to lead to an intelligent investigation of the matter.

Literature can be secured that will materially aid in the investigation. Engineers' estimates of cost of construction, of

the different classes of improvement, of the advantages of one kind of road over another in the cost of moving loads over them, marketing produce, periodicals devoted to such enterprise, consular reports, statistics, etc., etc.

Beside the personal work to be done, the local papers should be used. Every issue should mention the subject in some way or other that will not fail to arrest the attention of its readers and, if possible, to provoke discussion.

When interest has been awakened, even though the citizens do not rise up in a mass and demand the improvements, as they probably will not do, for the masses have to be handled as well as educated on any new departure; the next thing is to enlist support.

Care must be exercised to enlist, if possible, the most influential, and a sufficient number, and have them so much interested as to be pledged to the improvements sought.

Men are much like sheep when a new opening or departure presents itself, all hesitate until two or three make a start, then all are likely to follow speedily.

Over the names of a few such leaders thus enlisted, if practicable, call a meeting of the citizens for the purpose of considering the matter of improvements.

At the meeting the disadvantages, inconveniences and discomforts of the present condition ought to be fully rehearsed and, if possible, every one attending should be induced to add his complaint to the general protest.

Men are always ready to complain and in this matter, contrary to all rule, they should be given every opportunity and encouragement, for they thus predicate themselves to the right side of the question.

The next step may now be taken and an organized effort made. The very first meeting may and should be permanently organized; a chairman and secretary and committees chosen, resolutions of disapprobation and, if necessary, reprobation of the present condition of things passed, petitions or communications to the necessary authorities prepared and forwarded, or delegations sent.

If the first meeting be too soon to do all this successfully, the meeting should be adjourned from time to time until the sentiment will support the desired action.

Now comes the last and most important step, and withal the most difficult of exact description, in the promotion of the enterprise. The *direction of procedure* is that rounding up of sentiment, support and effort which will crystalize into a favorable decision of the proper authorities, and the balance will be the detail of legislation and the preparation of plans to consummate the work, and is beyond the question, or is rather the fruition of the effort of "how to get at it."

It will require wisdom to consummate this last step, for while it may be easy to excite interest and expectation, to enlist support or even to organize effort, yet all this will fall short of reaching the desired end unless due care is had to the proper understanding of the feasibility of the project. The natural advantages must be taken into account and made the most of. The raising of funds must be so shaped as to be least burdensome to the people by whom paid, and the proper distribution of the improvements pointed out, and all this must be in aid of the proper authorities.

It can not be successfully foretold just what course should be pursued in all cases, for the situations both as to enactment and the extent and nature of the improvement projected differ in county or town, and in different sections of country and different sized towns.

These are in general the steps to be taken in "getting at it," but the important thing is to *begin*. *Begin at once*, and keep at it; earn the name of a "crank on roads," if necessary, but never let up, follow it tirelessly, constantly.

The theme is so rational that it must win in the end, and then comes the reward.

ONE might as well attempt to calculate mathematically the contingent forms of the tinkling bits of glass in a kaleidoscope, as to look through the tube of the future and foretell its pattern.—*Beecher*.

COWS WERE MADE BEFORE RAILROADS.

A COW wearing a bell was run over and killed on a railway near London, England, recently, and the owner sought to recover damages from the railway company. On the trial of the case, it was proven that the engineer blew the whistle loudly, trying to frighten the cow away from the track. The farmer's lawyer also proved that the cow was equally attentive to business as the engineer, in ringing her bell and exerting herself to scare the engine off the track. The jury gave a verdict for the cow.—*Ex.*



ROAD ON WHICH WIDE TIRES ONLY ARE USED.

SOME HARD FACTS ABOUT WIDE TIRES.

BY MRS. H. W. MOORE.



MRS. H. W. MOORE.

ALTHOUGH unaccustomed to writing for publication, I could not longer refrain from telling what I know about the practical benefits to be derived from broad faced wheels.

My late husband was a few years ago induced to have wide tires applied to one of his farm wagons. The first cause of his interest in the matter was the passage of what is called "the Michigan Wide Tire Law."

He was a practical, calculating man, and as soon as he learned that he could save one-fourth of his road tax by using

tires 3 1-2 inches wide, and that he could have the necessary alterations made for about fifteen dollars, it was easy to see that



SHOWING EFFECT OF NARROW TIRES.

there was no other place where he could invest fifteen dollars and get so large an interest as twenty-five per cent. This was enough of an incentive to make him try the experiment.

Although he had been told that such wagons would haul more easily, he was not prepared for the surprise which was in store for him.

On the farm twenty bushels of potatoes had been considered a good load over the soft ground, but after he had the wide tires applied, I have often heard him say that the same team could haul fifty bushels over the same field and with seemingly greater ease.

About the time he adopted the "flat-footed wagon" (as the editor of *GOOD ROADS* calls it) he was appointed pathmaster of the road district in which he lived.

Being very enthusiastic on the subject himself, he soon convinced other farmers that they could not afford to go on using the narrow wheels. He talked it to them until every man in the district became a convert to the new idea, and at present no other tires are used around this neighborhood.

I recently asked the present pathmaster whether he thought that with the entire road tax reduced one quarter, as it would be when all the hauling was done on wide tires, there would be

enough money raised to keep the roads in repair, as compared with the full tax when nothing but narrow tires were in use. He replied :

"Yes, and more too."

I read GOOD ROADS magazine and have come to be much interested in the road question.

I wish everybody could know the advantages of these wide tires ; if they could, not many of the narrow ones would be used.

GO EASY WITH THE BOYS.

ANY man who has ever been a boy, and we assume that this includes all except the "self made" men, will appreciate the following from Robert J. Burdette, which we clip from the *Home Journal* :

"Of course, there must be punishment for offenses ; punishment for the sake of discipline. The prohibitory law without the penal clause is of very little effect. But revenge isn't punishment. It is better by your example, by your helpful companionship, by your honest counsel, to keep the boy out of trouble than it is to whip him for getting into it. The more loving and forgiving your punishments the deeper will be their impression upon the heart of the boy. Be gentle and patient with him. His worst faults irritate you the most keenly because you know whence he inherits them. If you are going to make a New Testament man, model yourself on the same lines. It was Elisha, the prophet, a good man, a holy man and a just man, who in righteous anger laid upon Gehazi the leprosy of Naaman that should "cleave unto him and unto his children forever," a punishment for covetousness and lying. But when the Man of Nazareth came into the world he laid his hand upon the leper and cleansed him with perfect healing and tender words.

When you have made up your mind in about ten minutes or ten seconds that your boy needs a good sound whipping, take about three days to think over it—a whipping will keep a week—and then see if you can take a stick and beat him."

'Tis but the heart's own cheer that makes it glad,
And one's own madness will drive him mad ;
It needeth not that other help be had."

—H. M. Alden.



“A PHANTOM ROAD.”

BY E. P. S. MILLER.

IT was a chilly October evening when I sat by a blazing hearth and watched with interest the varying flames. Down the street a group of maroon-clad and gold-braided enthusiasts were blowing out of silver and brass instruments the strains of “Won’t You Be My Sweetheart?” and like the flames the sounds rose and fell.

I became very comfortable; the old home never seemed so cozy, and dying sounds of the march in Lohengrin came softly floating on the autumn breezes. I began to lose myself or my consciousness of immediate surroundings.

It was a beautiful scene that met my eyes. The bright August sun shone upon trees of ripening fruit on the hills and vales spread out before me. I was sitting by the edge of a road, and what a road! It was a dream such as my wildest fancy had never pictured.

A road, wide, level, smooth, dustless and permanent.

Along each side magnificent trees sent aloft their towering limbs, through which the road looked defiance at the sometimes destructive sun. A sudden shower came swooping down upon the road. Alas! thought I, my dream is to be destroyed. But, no! The water only seemed to kiss the surface of the road as it passed through and disappeared. The clouds were gone, and from a distant vale the sun was reflected from a little stream of water.

On looking more closely I discovered a well-made conduit pouring into this little valley the water which had fallen on this road for miles.

Again I heard an air from Lohengrin wafted gently to me by the breezes which fanned my brow. I looked around, but could see no players. I ran with boyish curiosity to the turn in the road, and there I saw a wondrous sight. A band mounted on bicycles! I looked in vain for handle bars. How can those fellows keep their seats? There was the solo clarinetist playing without the loss of a single note, and without losing his balance or falling behind the piccolo player on his right.

This must be a dream. Surely, I have seen fellows ride without touching the handle bars, but to play an instrument, too. I don't understand it! As they came closer I saw that instead of handle bars they had knee-bars by means of which they maintained a balance; some, however, scarcely used these.

The road was the secret then. I stooped down to examine the material of which the road was made, when boom! came upon my ears the sound of one of those abominable, unmusical bass drums which infest the American band—I had slipped out of my chair, the back log had gone out in one explosive spark, and the perfect road remained what it really is, a dream—not a reality.

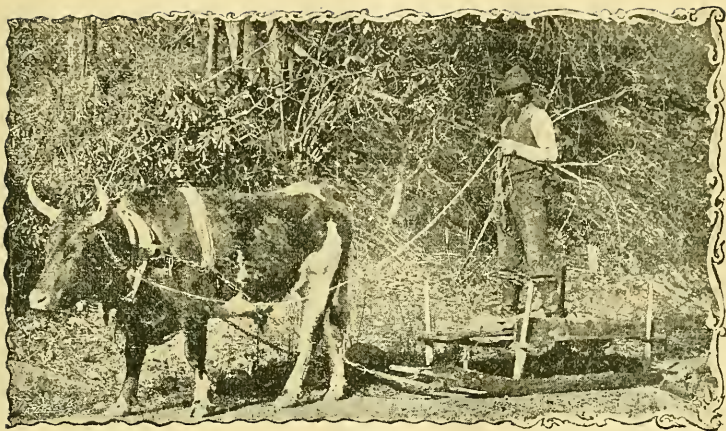
A RECORDING DINAMOMETER WANTED.

WE would like to see someone produce a recording dynamometer which would be practical to use on a farm wagon or truck.

At present the result of tests made for the purpose of determining the amount of force required to haul different tires over a given road, or any given tire over various roads, are not as satisfactory as could be desired.

The extreme pull is easy to get, but the intermediate readings are somewhat unsatisfactory.

The proper caper would be a dynamometer having a clock attachment and a roll of paper upon which a pen or pencil would trace the constantly varying pull. There would be a limited demand for such an instrument, but its use would furnish valuable information and its inventor could count upon the hearty commendation of GOOD ROADS. Who will build it?



BILL NYE AS A FARMER.

BILL NYE'S farm is hidden away in a broken-off corner of a county in North Carolina, four miles away from the nearest railway station, and fifteen miles up the valley which extends to the south of Asheville, N. C. The name of his country seat, Buck Shoals, was given it fifty years ago by the natives. Here, in a shallow place on the Swannanoa river, the water tumbles over the rocks for one hundred yards in a cool and fascinating way. Bill Nye relates an interesting incident concerning a plunge bath he took soon after locating here:

"I have changed considerably since I began farming and living in the mountains. I came to this section for the first time eight years ago, pretty well run down. I suffered from nervousness, loss of appetite and the other ailments you usually find described in the average patent medicine circular, but North Carolina has made a new man out of me. In fact I had no idea how tough I had become physically until a few winters ago when out on horseback. It was in December, and I had to ford a river. A friend—at least I thought he was—lent me one of his animals, which I found out afterward had a fondness for rolling over in the water. When we reached the middle of the stream, he decided to indulge this little eccentricity. We both rolled. The water was ice cold, but I had become thoroughly warmed up from the exercise, and that and my renewed health probably saved my life. Had I been as feeble as when I first came to this part of the country, I don't believe I could have stood the shock. As I told you, I was warmed up, and when we reached the bank, I got a limb from a tree, and before I reached home that horse was warmed up also, I can assure you."

The scene in the illustration conveys an idea of the primitive mode of culture at Buck Shoals. The plowboy, however, is not Bill Nye, but the irrepressible Billy Tayloe, passenger agent of the Southern Railroad, who is proving to Bill Nye that he is a success wherever he is placed. Buck Shoals is only reached via his line.

Bill Nye a farmer! Strange, but true. We generally suppose he uses this place for the purpose of making fun and incidentally money out of it, but while it has given him ideas for many humorous descriptions, he actually cultivates the seventy acres he has, and raises potatoes, beans, peas, corn and the usual garden vegetables, also small fruits, such as berries. "I have astonished my neighbors," said he, as we lit cigars and strolled down toward the river. "They called me such names as 'belgian block farmer,' and had plenty of quiet amusement when I first came here, but after I began to sell some of my vegetables, they changed their minds. People don't generally know that I was raised on a farm. Father died when I was a boy of fifteen, and I had to manage a place of 200 acres in the northwest. My experience at that time comes very valuable to me now.—*Southern Cultivator*.

"STRAW RIDES."

HOW EVERYBODY MAY ENJOY THEM IN A NEW WAY.

REFERRING to the use of straw to work into roads on hill-sides to prevent washing, the *Monmouth Review* says: "The material is capable of much more extensive application in road building. The farmers in one of the northern counties are trying the new scheme. They take straw and scatter it all over the clay roads. When it has worked into the dirt and settled down it makes a hard, smooth and dustless road. The plan is used with great success in many parts of Germany.

If you waste time trying to discover what you are here for, the Lord himself will be at a loss to account for having made you.—*Atchison Globe*.

CONVICT LABOR ON COUNTY ROADS.

ALBANY LIKELY TO TAKE THE INITIATIVE IN USING PRISONERS UPON THE HIGHWAYS.

Supervisors to adopt the county road system and introduce a bill into the Legislature to carry it on with convict labor—Ex-Justice Learned of the Supreme Court describes the roads and manner of road improvement in the county—he discusses the employment of convicts pro and con, and favors better country roads—experiment in which he took part.

ALl the farmers in the county have taken a deep interest in the new road system which is now before the Board of Supervisors for consideration. It is likely to be the most important matter before the board this winter, and a strong and concentrated movement is on foot among interested persons in this city, as well as in the rural districts, to have it adopted this winter.

While a plan for systematic improvement of the principal roads of the county is all that is contemplated just at present, it is the aim of those who are most strongly in favor of road improvement to use convict labor upon them, which doubtless will be the ultimate outcome of the scheme.

Power to adopt the county road system is given to the Board of Supervisors by chapter 333 of the laws of 1893. Under the system it is incumbent upon the supervisors to designate as county roads such roads as it shall be deemed advisable, but preference in this selection is to be given to roads known as market roads. A county engineer would be appointed by the board. His term of office is fixed at three years, and he is subject to removal at the pleasure of the board.

The expense of maintaining the roads designated as county roads devolves upon the county under the new system. The supervisors are given power to raise money by the issuance of bonds for their maintenance and repair. They are under the exclusive jurisdiction of the county engineer and the Board of Supervisors, and are exempted from any interference on the part of local highway officers in the towns through which they pass.

Judge Wm. L. Learned is an authority on the roads of this county, and has given close attention to the various methods and attempts that have been made to improve them. He knows that the farmers of the county want good roads, but he believes that the great drawback has been that improvement on the most approved plan has been found too expensive. This he considers the great obstacle to be overcome, when he was interviewed by a *Journal* reporter at his office this morning.

Judge Learned explained the existing system of road improvement in the county. As every farmer knows, each tax-

payer is assessed for road improvement, and he may either pay the amount of the tax or "work it out" as the expression is, himself. Almost in every case where the farmer has resources beyond his own labor and his farm he prefers to work out the tax, and if it is very large, he takes along his boys or hired men, each of whom receives a day's pay at a fixed rate, and this applies to wiping out the amount of the farmer's highway tax.

Work done in this way, Judge Learned remarked, is not done in accordance with any specified plan. The farmer goes to any place he desires near his farm, and the usual plan is for him to take his horses and scraper along, and carry earth and turf from the ditch along the side of the road up to the top of it and spread it on. This earth is lower than the top of the road. It is rich soil, and is perhaps the poorest in the world for the purpose for which it is applied. When the surface of a country road has been treated to a layer of this kind it is muddy to a degree for several seasons until the travel has been sufficient to work it down.

Another evil from this system, the Justice said, is that the farmers who do this work come late and go early, and get off with as little actual labor as they possibly can.

Judge Learned told of a short road near his country seat at Cedar Hill, down the river road, which was improved by the use of crushed stone. The crushed stone was purchased at an expenditure of \$1 a cubic yard and brought from a distance by rail. Each carload cost \$23, and the whole cost of buying the stone was out of all proportion to its subsequent usefulness. A thin layer of earth was placed over it, but in a few years the stone was worn out almost completely, and the road was hardly in any better shape than it had been before it was put on. The stone usually employed in this vicinity for such purposes is of a lime formation, and comes from the neighborhood of Bethlehem. It does not contain lime enough for its extraction, and is not valuable for any use other than to improve the roads. Trap rock, however, is considered the best stone for the purpose anywhere to be found. It is the material of which the Palisades are formed.

Judge Learned noted the difficulties also of employing convicts on the roads. He mentioned above all the distaste the people would have of meeting gangs of men chained together or under the keeping of armed men in going about. He considered the difficulty of transporting them to or from their labors very great, and he expressed the opinion that in this climate it would not be possible to have them work the year round, while in the most favorable months of the year rain might prevent them from doing anything. Thus for a long period it might be necessary to provide them with employment within

their prison walls. The adequate number of guards would also be an expense.

On the other hand, he believed the convicts would prefer the out-door work. It would not be a serious matter if a few of them should escape. It would certainly give the country better roads, and that is what the people want.

It is probable that Albany County will be the first to employ convict labor upon its roads, although the new county road system has already been adopted by one of the western counties of the States. After the roads not controlled by the turnpike companies have been improved, it is probable that some of the worst conditioned turnpikes will be improved after they have been purchased from the counties and the toll-gates gradually abolished. The sentiment in favor of this is strong in the county and in the city. It is argued that they retard the progress of the city and its suburbs, and that they must go.

In this connection a story is told of a stranger who moved into a village not far from Albany and bought a house. He undertook to repair his front stoop one day, when an officer of the law came along and told him to stop work.

"This town is dead," said the officer of the law, "and no improvements are allowed. You must stop that at once."

The stranger didn't understand very well, but he saw from the stern face of the officer that he meant what he said.

"No improvements," he exclaimed. "As I came into town I saw men building a new toll-gate up the road. That belies your statement."

"No, it don't," rejoined the other. "That is a necessity. It is intended to keep people out."—*Albany Evening Journal*.

CONVICT LABOR.

A MINNESOTA LEGISLATOR'S OPINION.

J. J. BASTON, member from the Thirty-fourth District, Hennepin County, thinks that the legislature this winter should do something to stop the cry which organized labor in the State is making against convict labor. Mr. Baston is the only country member of the Hennepin delegation, and naturally is interested in good roads. It is his idea that the convicts should be called in from the work which they are now doing for shoemakers and others and put to work pounding rock for the roads of the State. Such a course would interfere with no class of labor and would soon make a great improvement in the roads of the State.—*Minneapolis Journal*.

COARSE GRAVEL.

WHAT TO DO WITH IT.

BY E. G. OSMAN.

I N the course of a dozen or more years of active work as "local" and editor of a daily newspaper in a little city of about 12,000 people, I had frequent occasion to criticise the local methods of street improvement—never, however, I am sorry to say, with any satisfactory degree of success, probably because I was known to be "only a theorist." I had never "bossed" a street gang, nor handled the pick and shovel, and was thought to have no fellow feeling with the "byes" who got "a dollar 'n a' quarther a day anny how, whither yez git t' the alley or t' Third street."

I had discovered, however, that although the fund appropriated for street improvement, amounting to from \$4,000 to \$10,000 a year, was always spent to the last dollar, yet we never had any decent streets in town and few that were really passable in wet weather. The natural surface was the usual black Illinois soil. The usual method was to "pike" the centre of the street, by taking out a narrow strip along side of the curb, when there was a curb, with a scraper, and deposit the loose black dirt on the roadway and then pile on gravel. This gravel was in all sizes, from a grain of sand to rocks or cobbles the size of a man's head, and came from a "pit" on the river bank. The rocks were, of course, round and smooth. Except for a top dressing, there was no attempt made to screen the gravel, and "everything went." A squad of Milesians with rakes followed each wagon load of gravel as it was dumped, drawing out the big stones from the finer particles so they would be buried under the finer gravel, on the theory that they would make a good foundation for the top dressing.

I happened to be friendly with a certain chairman of the street and alley committee, who was overseer in general of all such work, and ventured the suggestion to him once that he would have a good crop of stones for the next few years from a street improved on the above described plan, even if he did not have much of a road! His answer led me to think that perhaps he was right; that "kids" just out of college might be able to scan Virgil or sound the depths of meaning in a Greek subjunctive, but they were not expected to know anything about road making.

Well, the summer and fall were dry, and, of course, no one would drive on the soft gravel road until spring came, when the mud in the so-called gutters got too deep; then they took to the gravel as the lesser evil. In about a month, when dry weather

had come, I noticed the street gang at work on that street gathering a fine crop of round stones; and regularly thereafter all summer they harvested a similar crop about once a month. The following spring the crop was greater than ever.

It seemed as though every rainfall hailed down more round, smooth river stones, and to-day, after several years of periodical harvests, there would be no trouble in gathering a wagon load of cobbles there any day, while the gravel has entirely disappeared. Being a younger man, I never had the "nerve" to taunt my friend with the stone crop which I had promised him, and he has long since gone out of office, but I will say to his credit that he never bragged very much of that particular half mile of "improved" street.

My criticisms on his road were that he had (first) made no provision for drainage. There was then no sewer on the street, and no provision was made to take away the water turned from the centre of the street into the scraper-made gutter, where there were dips in the street level, and these were pretty frequent, as the street itself had never been graded. The water went to the sides of the street and lay there until evaporated by the sun, or had been drawn by capillary attraction to the centre of the street under the gravel, destroying the foundation for the rocks and gravel. I also objected (second) to the use of the big, round, smooth stones in the gravel in their natural condition. The reader who has examined this kind of river gravel will remember that these stones are polished by ages of attrition in the current of running streams before their final lodgment where now found, and every surface is as smooth as polished glass. It stands to reason that such stones can no more be solidly packed on a road bed than marbles in a box, unless fixed individually like the old Philadelphia cobble stones. Thrown loosely under the gravel, every wheel passing over loosens them, and sooner or later every one larger than a walnut works to the surface. Summer and winter the process goes on until every cobble has reached the surface. For "bobbing up" in the most miserable way and at the most inopportune times, Banquo's ghost "isn't in it" with river cobbles in gravel on a country road.

I am not a road builder, nor yet an engineer—simply an observer, but my observation has taught me that a solid, smooth road cannot be made in that way, though it is almost the universal practice when such material is to be had. But I do believe that the material is excellent for the common purposes of the average country town or highway, when properly treated.

In the first place, provision must be had for drainage into the sewers in the towns; into tile drains in the country. The surface of the road, as I would make it, will turn the water to

the drains, which will carry it away before it can soak into the soil under the road bed itself.

The cobbles in the gravel should then be sifted out, no piece larger than a hickory nut to be used under any circumstances—none larger than the size of a hazel nut would be still better if used as smooth, round pebbles. The stones should then be run through a crusher and broken up into pieces not larger than 1 1-4 inches. This gives every piece a rough angular surface.

This crushed stone should be used as the foundation, spread on thickly, and firmly packed by rolling. And in this form the stones will pack solidly, a result which can only be accomplished with broken stones. Over this foundation the fine, screened gravel, mixed with a little clay or hydraulic cement, or both, with a little water added, may be spread on and this, too, rolled while still wet. When dry it is ready for travel.

This way of making a macadamized street may cost a little more than the old "helter-skelter" way I have described, but it will warrant the extra cost because it will be solid and smooth, and with care in making repairs, as quickly as needed, it will last a long time—many years under all traffic of any ordinary city up to 25,000 people, and what is more, the cost is within the means of an average village or city.

TWO MEN FINED FOR SPOILING A ROAD.

ON complaint of G. J. Smith, president of the Ulster County Road Improvement Association, James Foster and Joseph McSpirit, two teamsters in the employ of Wilson Brothers, were arrested yesterday by Officer Ryan charged with violating the Wide Tire Ordinance. They were arraigned before the Recorder and fined \$50 each. In default of the fine, they were committed to jail for thirty days. They had over five tons of stone on each of their wagons, while the law only permits two and one-half tons to be drawn on a narrow tired wagon. Wilson Brothers had a tussle with the Wide Tire Ordinance several years ago, appealed from a decision of the Recorder and were beaten. It is rather hard on their employes to be arrested and imprisoned, but it is high time the law is enforced.—*Kingston, N. Y., Leader.*

ROAD IMPROVEMENT AND THE FARMER.

BY C. E. ESTABROOK.

[Extract from a paper read at a Wisconsin Farmers' Institute.]

THE present system of paying highway taxes, figuratively designated as "working them out," is admittedly bad and can be easily remedied, but an attempt to make a change in this direction would undoubtedly meet with opposition, hence I have avoided discussing that subject, preferring to let the several propositions stand alone and be discussed and considered on their respective merits. The subject of good roads has received so much discussion in the public press lately, and there seems to be such a uniform consensus of opinion that something must be done in this direction, little more remains to be done than to devise some general plan which shall not only be feasible but generally acceptable. Good roads mean a great deal more than mere convenience. They mean more than saving money, which, however, is a matter of no small importance. They mean a more intimate relationship between the city and country people, to the mutual advantage of both. They mean that living in the country for six months in the year shall not be practical isolation.

Poor roads keep the farmer and his family at home at that season of the year when they have the most leisure, when time hangs heavily, when it could and would add to their enjoyment socially, and advantage educationally, if a frequent drive to the town or city, or a visit among the neighbors and friends living at a distance of a few miles could be taken.

ADVANTAGES OF GOOD ROADS.

The longing of many young men and women to escape from the farm is largely traceable to the isolation caused by the mud embargoes. Good roads mean better prices for the farmers located a few miles away from the market town, because the present condition of the highways compels the marketing of the products of such farms at the times when the roads are good and the market prices usually lowest. Good roads would permit the average purchaser of farm produce living in towns and cities, to buy his stock of such articles at a lower price than at present.

Indeed it seems to me that no more important topic in a financial and social way has of late engaged the attention of the public. If, then, this subject is of such prime importance, the necessity of moving with great care will be apparent. As indicated above, it seems to me wisest to commence with a system of country roads branching out from the county towns,

ultimately to extend from county seat to county seat. The enterprise being of such general public interest to the people of the whole State, uniformity in plan and entire freedom from local influence in the selection of a route or the acceptance of work done being so important to general success of the undertaking, the making of the plans and the surveys, and in a measure the general superintendence should be under the direction of a State engineer, whose expenses should be borne by the State at large. Subject to the general supervision of the State engineer, the management of the improvement should be under the control of the county board or other county official within their respective counties.

CONVICT LABOR ON TEXAS ROADS.

A CORRESPONDENT of the *San Antonio Express* calls attention to two questions of supreme public importance pressing for solution at the present time in Texas.

One of these questions is "How to obtain good roads" and the other "How to employ convict labor," and to his mind the second question suggests the answer to the first. He takes the view which the *Post* has long and persistently urged, that honest labor should not be compelled to compete in any line with convicts, and that some means should be found for employing their services which would make them pay for their keep, which should not be open to the objection which honest labor properly urges. The necessity for improved public highways is everywhere apparent, and the problem of how to provide them has engaged public attention as one difficult of solution. The counties and local communities have tried in a feeble way to improve roads, and it must be admitted that in some instances they have accomplished a good deal, but the means at their command have not been sufficient to enable them to more than make a start in the desired direction. The entire State needs a better system of roads, and to what better use could the convicts be put than in supplying this need? Of course a plan could be devised by which the sections of the State directly benefited would be required to remunerate the State for the use of the convict labor so that those localities soonest to appreciate and secure the needed road improvements would have the first benefits, and the State convicts would be constantly employed in useful labor that would be of the utmost benefit to the whole people of the whole State without in any degree conflicting with honest labor. As the *Express* correspondent suggests, the question should be agitated by the press until the Legislature is forced to take some action in regard to it, or at least give it due consideration.—*Houston Post*.

MASSACHUSETTS ROADS.

THE State Highway Commission is expected to ask for a million dollars from the Legislature this winter, for the work which that body has taken in hand. There is no better use to be made of the people's money than to put it into improvements such as those which are planned under this commission.

The need of better roads in Massachusetts was known to exist before the Highway Commission was called into existence. It is demonstrated now by the number of applications for State roads which have come in under the new law. These already number more than one hundred, calling for nearly 500 miles of road. It is an enterprise which may be expected to grow as the advantages of good roads, constructed under this system, become apparent; but neither its great extent nor its great cost should deter the State from carrying it on liberally and actively.

The system of State roads is not only a benefit in itself, but in the construction of the new highways there is an opportunity for the employment of labor, which has no little importance.—*Boston Post.*

A JUSTIFIABLE BOYCOTT SUGGESTED.

ANOTHER clutch on the throats of the masses, by a great greedy, grasping and ghoulish monopoly! Poor people who have already been brought to starvation's door by this monster of oppression and cruelty are to be loaded down with still heavier burdens. They should not submit to it. They should rise as a body and strike. They should boycott the productions of this oppressive tyrant and resolve never while life lasts to give it one cent of patronage in any way. Now is the time for a bitter war of extermination, for here is the straw that has broken the camel's back:

"A new agreement providing for an advance in the price of beer has been signed by the members of the brewers' association."
—*Western Ploughman.*

COW BUYERS PLEASE TAKE NOTICE.

When you sell a cow sell the poorest one you have.—*Utica, N. Y., Press.*

“JANUARY is the first month of the new year.” This startling intelligence, which we extract from a country weekly, suggests several things.

Of course at this time we are inclined to take a fresh grip on life—sort of spit on our hands—metaphorically, of course, and start in with a determination to do better, yes, and to do more of it.

Don't mind the newspaper insinuations to the effect that you are sure to backslide. Of course newspaper men *would*, but you as readers should not “falter and fall by the wayside.”

You should, however, surround yourselves with every available sustaining influence, among the more potent of which, permit us to mention GOOD ROADS at the ridiculously marked down price of \$1.00 per year.

Day of Year.	Day of Month.	Day of Week.	Length of Day. H. M.	FIRST ▲ January, 1895 ▲ MONTH
1	1	Tu.	9 09	He plays well that wins.
2	2	W.	9 09	A good name is better than a big income.
3	3	Th.	9 10	Praise the sea, but keep on land.
4	4	Fr.	9 11	Pay as you go.
5	5	Sa.	9 12	You shouldn't go if you can't pay.
6	6	S.	9 13	GOOD ROADS \$1.00 per year.
7	7	M.	9 14	Never look a gift horse in the mouth.
8	8	Tu.	9 16	Every herring must hang by his own head.
9	9	W.	9 17	When sorrow is asleep, wake it not.
10	10	Th.	9 18	Bound volumes \$1.00 each.
11	11	Fr.	9 20	You cannot have blood out of a stone.
12	12	Sa.	9 22	Empty vessels make the greatest sound.
13	13	S.	9 23	A false balance is an abomination.
14	14	M.	9 25	Reprove not a scorner, lest he hate thee.
15	15	Tu.	9 26	At the same place.
16	16	W.	9 28	A soft answer is hard to make.
17	17	Th.	9 29	Ripe apples are better than green ones.
18	18	Fr.	9 31	Envy not another's lot.
19	19	Sa.	9 33	No. 12 Pearl street.
20	20	S.	9 35	You can look at teeth and not be bitten.
21	21	M.	9 37	One bad example spoils much.
22	22	Tu.	9 39	Unknown, unmissed.
23	23	W.	9 41	Boston, Mass.
24	24	Th.	9 43	While the grass grows the cow starves.
25	25	Fr.	9 45	In a calm sea every man is a pilot.
26	26	Sa.	9 47	Talking pays no toll.
27	27	S.	9 49	Hot sup, hot swallow.
28	28	M.	9 51	League members,
29	29	Tu.	9 53	Use your thinker.
30	30	W.	9 55	Saying and doing are two things.
31	31	Th.	9 58	Fifty cents.

LEAGUE OF AMERICAN WHEELMEN.

..... Organized 1880.

A voluntary organization having for its object the systematic improvement of the public roads, and the protection of wheelmen against unjust legislation. The present officers of the League are as follows :

President.—CHAS. H. LUSCOMB, 280 Broadway, New York.

First Vice-President.—A. C. WILLISON, 47 Baltimore Street, Cumberland, Md.

Second Vice-President.—GEO. A. PERKINS, 15 Court Square, Boston, Mass.

Secretary.—ABBOT BASSETT, 46 Van Buren Street, Chicago.

Treasurer.—W. M. BREWSTER, 411 Francis Street, St. Joseph, Mo.

GOOD ROADS MAGAZINE.

Published on the first of every month by the League of American Wheelmen.

Devoted to Highway Improvement.

STERLING ELLIOTT, *Managing Editor.*

Publication Office, 12 PEARL STREET, - - - BOSTON, MASS.

Correspondence relating to advertising only
should be addressed to 167 Oliver Street.

Entered at Boston Post Office as second-class matter.

Single Copies, 10 cents.
League Members, 50 cents.
\$1.00 per year.

Please send Good Roads for _____ year _____

To _____

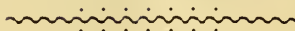
Street _____

Town _____

Amt. enclosed _____ County _____

Beginning with _____ State _____

Opening of a Chestnut Burr.



HOW ABOUT FOOTBALL?

If you should hap these days to see the
coroner,
O'er his face the smiles a chasing up
and down,
Bet your pile with either native or for-
eigner
That some jumper from a parachute is
in town.

— *Buffalo Courier.*

WHERE COULD SHE HAVE LOOKED.

"I've been looking for my
husband for the last two
hours," said an agitated
woman to a calm one. "Don't
get excited, madam," replied
the latter. "I've been look-
ing for a husband for the last
25 years."—*Harper's Bazar.*

SHAKE.

Lives of poor men oft remind us
Honest men won't stand no chance;
The more we work there grow behind us
Bigger patches on our pants.
On our pants, once new and glossy,
Now are stripes of different hue,
All because subscribers linger,
And don't pay up what is due.
Then let all be up and doing,
Send in your mite however small,
Or, when the snow of winter strikes us,
We shall have no pants at all.

— *Nashville American.*

Have you subscribed for
GOOD ROADS yet?

And if not, what are you
waiting for?

THIS SETTLES IT.

The Seventh Day Advent-
ists of Battle Creek have
adopted a resolution condemn-
ing the bicycle as an unholy
and unchristian vehicle. — *Un-
identified.*

UNLESS HE LIVES THERE, IN WHICH CASE HE WILL LONG TO GO SOMEWHERE ELSE.

There's mountain air and sea air
And foreign air, I s'pose,
But one must be a millionaire
To fill his lungs with those.

— *Unidentified.*

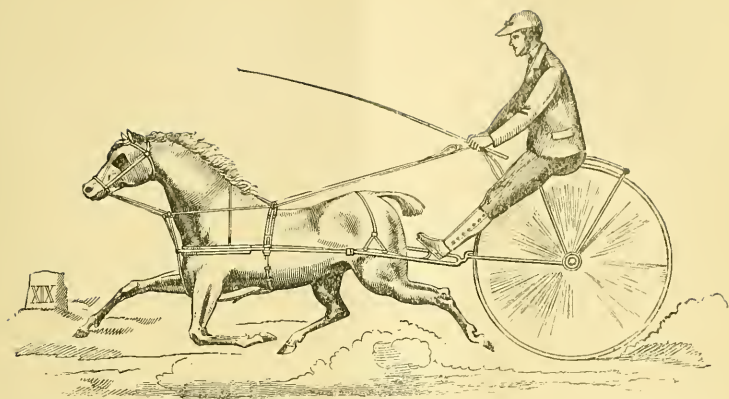
'T WAS WELL SHE MADE HIM
PROMISE, ELSE HE MAY
HAVE FORGOTTEN TO TELL
HER.

"You really ought to learn
how to cook before you get
married."

"Oh, that's all right. I have
made Fred promise to tell me
what things I don't cook right,
so I'll soon learn."— *Truth.*

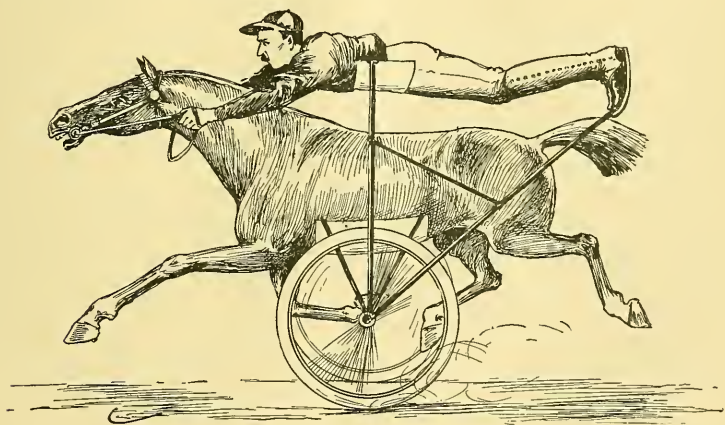
HOW DOES HE FEEL WHEN HE SEES A "PURE AMATEUR?"

We never see a citron with-
out thinking it should be ar-
rested for trying to look like a
watermelon. — *Atchison Globe.*



“AN English gentleman,” says the *Hub*, wants to arrange with some American manufacturer to furnish him with vehicles like above cut “at a business-like price.” F.T.B

With all possible respect for the “English gentleman,” we would call his attention to the fact that his one-wheeled sulky originated on this side of the water and has been patented here, at least once, though the e. g. has the proud distinction of being the first to make a cut of it.



FOR the sake of America's reputation for new ideas, GOOD ROADS (\$1.00 per year) suggests the above as a novelty in the sulky line, and claims for it a number of advantages which should be obvious to an expert in such matters. Will the American manufacturer who takes the English gentleman's contract please communicate also with this office (12 Pearl street, Boston).



ISAAC B. POTTER.

GOOD ROADS.

Vol. 7.

February, 1895.

No. 2.

SHOULD BICYCLES BE SUBJECT TO A SPECIAL TAX?

By Sterling Elliott.

“THE Board of Supervisors of Oneida County, New York, have proposed a modification of the plan of taxing bicycles, in that they specify the purpose to which the sum raised is to be applied. The amount of the tax is \$3 for each bicycle, and the total is to be used for local road improvement. Wheelmen, to be sure, are advocates of good roads, and have already given liberally of their money and their energy to the cause. The use to which the money is to be put must therefore meet their approval, but the theory on which the tax is levied savors strongly of discrimination and injustice. Wheelmen are not the only class who use public roads, and should not be called upon to contribute more than others to road improvement. All persons, even foot passengers, need roads and are under equal obligations for their maintenance, and if those who are using vehicles are to be compelled to pay a special tax, all owners of vehicles of whatever kind should be treated alike. So far as damage to the roads is concerned, what comparison is there between a bicycle and a heavy wagon or a narrow-tired carriage?”—*The Maker and Dealer.*

GOOD ROADS is pleased to answer the question which is asked by the *M. and D.*

A pneumatic tired wheel is an unquestioned advantage to every inch of road which it passes over. The soft and yielding nature of the tread not only tends to, but *actually does* compress and smooth the surface of even the loosest soil. It has none of that grinding effect which the metal tire has.

It is not a question as to whether the narrow tired wagon or the bicycle injures the road most, for it is already well known that the wagon *does* injure it seriously, and it is easily demonstrated that while the bicycle has but little effect, that effect is always on the good side.

A large number of bicycles passing over a soft, muddy road will invariably make a smooth and comparatively dry path through it, while the same number of wagon or carriage wheels with metal tires would only cut up the mud and make it worse.

During some experiments which were tried last fall by the writer, it was found that a loose gravel road was so improved by hauling a pneumatic tired buggy over it six times, that on the sixth trip the power required to haul it was only about one-half the amount necessary on the first trial.

Does this look like injury to the road?

And, again, the bicycle rider with his low machine and air tires can travel along a road that is almost impassible for a loaded wagon.

A strip at the side from six inches to a foot in width is all the wheelman needs, but the teamster must have at least seven feet.

A bicycle path along the side of any highway may be made for a very small part of the cost of improving the main road, as not only less width is required, but a less solid foundation. And yet the wheelman is and has been agitating for improved roads, while they benefit him as a wheelman less than they benefit the average citizen.

It may be a proper subject for discussion, this question as to whether bicycles should be taxed at all or not. Possibly they should be taxed on their valuation, just as a wagon or any other personal property is taxed, but when it comes to a *special* tax, if there are to be special taxes, place them where they properly belong, which is on the narrow tired wagon.

I believe that every road should be free for the unrestricted use of all citizens, but it is entirely proper that the State government, presumably acting always in the interest of the people which it represents, should prevent by law the misuse or abuse of any public property.

If a man were to go into the postoffice, dragging after him some piece of freight which was digging into the floor, the postmaster who wouldn't have him promptly thrown out could hardly expect us to sign his petition for re-appointment.

The man who is cutting up the highway with narrow tires, claims the right to continue it, not because he thinks it proper, but because it has been permitted in the past and it suits his convenience to wonder why we should wish to improve on the "good old way."

I am inclined to think that if the first bicycles made had been pneumatic safeties the wheelmen would not have gone into road improvement agitation so deeply as they have, for it is certainly true that the bicycle of to-day needs improved roads much less than did the old style. The "movement for better going" has now become so universal and so well established that in some localities the wheelman's part in it is lost and swallowed up in the general interest which the subject has aroused.

A glance at the not very ancient history of the "cause,"

however, explains its origin and gives the wheelman first place on the pedestal. He pays his taxes like other people, according to his pile, and in his capacity as a wheelman asks no favors that are not of public value. To put a special tax on the bicycle, which *actually improves the road*, is base ingratitude, and

"If there be a crime of deeper dye than all the guilty train of human vices, it is ingratitude."

While to tax the narrow tired wagon, which literally murders the road, at no higher rate than we tax the comparatively inoffensive piano, which only annoys the newspaper paragrapher, is, to say the least, not in accordance with that law which is based on

"Equal and exact justice to all men."



THIS picture might have been taken in almost any other State except Pennsylvania, but it wasn't.

It shows one of the many ways in which a bridge should *not* be repaired.

It was sent us by Mr. Marriott C. Morris, of Germantown, Pa.

WILL GOOD ROADS BANKRUPT THE FARMER?

JOHN M. STAHL.

“**A**SK, and ye shall receive; knock, and it shall be opened unto you,” is as applicable to the hand and mind as to the soul. It is a law of industries as well as of morals. As truly as there is natural law in the spiritual world is there spiritual law in the business world. As classes have been so forcibly seized with a desire for better things that they have firmly, persistently demanded more favorable conditions, their demands have been yielded to them; and as soon as any class has been content to take less than it has been enjoying, the rest of mankind has been eager to push it down to the level of its desires.

The wage earnings of any class of laborers is neither more nor less than that which the class strenuously insists upon. The measure of wages is the standard of homes and comforts and education and social opportunities peculiar to that class.

The plane of living insisted upon determines the wage; the wage does not determine the plane of living.

As a class has been educated, as its horizon has expanded, as its hopes and aspirations have been broadened and elevated, as its luxuries of the immediate past appear to be only comforts in the light of the immediate future, its wages have been increased to keep pace with its insistent demands. On the other hand, as a class has been degraded, its wages have fallen. An upward or downward movement of stable, insistent desires carries a corresponding movement of wages. When a class has been content that the wives and children shall work in the field or shop or mine, the wages of the men have lessened until the whole family earned no more than the man earned before; and as, lacking a proper home life, lacking opportunities for education, lacking social culture, the family has sunk lower and lower, its wages have become less than was the wage of its head when he alone labored outside the house. When a class has been touched, as by the very finger of God, with the divine impulse for better things, and insists that the wives shall be housekeepers, that the children shall be schooled, that the homes shall be pleasant, that there shall be social enjoyment, the scale of wages has risen to the cost of these things.

Again, no lengthening of the hours of labor has ever resulted in a permanent increase of the day's wage, but in the end, by narrowing the life and lowering the intelligence and aspirations, it has had a contrary result; and no shortening of the working day yet effected has permanently decreased the day's wage. As the history of industrial movements among

peoples and in the centuries is more and more revealed, it becomes more and more certain that when a class has insisted that the life shall be more than meat and the body than raiment, it has been permitted to enjoy those things that are above the necessities of existence. As it has asked for better things they have been given unto it; as it has knocked at the door of a fuller life, to it has that door been opened.

Farmers are not without justification for their restlessness and dissatisfaction; but it must be confessed that they are nearly altogether to blame for their condition. They have not asked insistently and firmly for enough of the good things that minister to the body, mind and soul; and when they are offered suitable means of communication, for example, they actually refuse the proffered good. When they have asked for more than they were getting, they have often asked for foolish things in a foolish way. Farmers have been willing to work long hours; and the world has been very willing that they *should* work long hours. Farmers have been willing to live without many things that other people have insisted upon having; and the other people have carefully refrained from forcing these things upon farmers, keeping all these things for their own enjoyment.

Farmers have been content to have for alleged highways strips of mud, sometimes frozen, sometimes dried, sometimes liquid, and never good highway; and the rest of the world would never disturb this serenity of the farmers if the farmers alone were abused and injured by these strips of mud.

It is true that farmers, pressed by conditions until irritation has grown to anger, have asked blindly and violently for things foolish or wicked. Fortunately, such things as fiat money, two per cent. loans from the government, or "sub-treasuries," have not been granted unto them. This spasmodic agitation, resulting from irritation and anger, and which may easily spring from ignorance, is entirely distinct from the steady, calm movement that comes only from greater intelligence, higher aspirations, a wider horizon.

It is also true that farmers have to a certain extent rightfully asked for a higher plane of living, and it has been given to them to the extent to which they asked. In the township in which I lived twenty-five years ago—a very rich, purely agricultural region—there were only two carriages, and when one of those carriages passed along the road, I and the other youngsters climbed on the fence to gaze at it. Then we went to church in two-horse farm wagons, but now if a resident of that neighborhood took his family to church in a two-horse farm wagon, the youngsters would certainly stop to look at him. Practically every farmer in the township has a carriage. Some farmers have two or more. I do not think that there was an

organ in that township twenty-five years ago. Now half the farmhouses contain very good organs indeed — and the organ is hardly good enough now; the talk is of pianos. It is within twenty-five years that the chromo reached that neighborhood; and it was better than the bare walls! But it has gone and in its place are steel engravings and enjoyable pictures (some of them painted by farmers' daughters), and some real etchings. And with these things have come "store carpet" and lace curtains and beautiful lawns and magazines and patent leather shoes—all practically unknown there a quarter of a century ago.

If in 1870 it had been proposed that the farmers should buy those carriages, organs, pictures, carpets, etc., it would have appeared much more extravagant and impossible than good roads appear to be now; and it would have been!

The man that would have then said that the farmers could have the carriages, furniture, clothes, etc., they have been having would have been in the eyes of the farmer a greater idiot than is the good roads enthusiast to-day. The man that in 1870 had proposed that the farmers should buy the sulky plows, two-horse corn planters and cultivators, disc harrows, forcefeed grain drills, and self-binders that they have bought would have been given the middle of the road, if not all of it. There are plenty of men that would have figured out that all these things would cost more than the farms would sell for, just as such computations are now made on good roads; yet to my own knowledge above nine-tenths of the farmers have paid for these things, and more—a majority of them have paid for good farms.

It will probably be said that the price of these things has much declined. So it has—because of the increased demand; more of them were required. And just as more good highways are required will their cost decrease—labor-saving, cost-saving devices and methods will be invented and discovered. In some parts of Illinois in which the road tax is collected in money and the work is let to bidders, a class of road makers has been developed, provided with machines and acquainted with methods that have reduced by almost one-half the cost of making earth roads. This is an important point apparently overlooked—as we make more good roads they will cost less.

It should not escape consideration that while buggies, carpets, organs and pictures are not money-makers, not even the bitterest opponent of good roads has been able to make it appear that good highways will not pay a fair income on the investment. The capital put into them will not be dead capital; it will be productive. Good roads will at the least help to pay for themselves. In fact they will pay back all their cost and more.

Better houses, carriages, musical instruments, and all such things that we have been considering, farmers have had to pay for themselves, and it has not bankrupted them. For better roads it is proposed to tax all other classes as well as farmers, and yet the cry is that proper means of marketing crops, transporting supplies, and of social enjoyment will bankrupt the farmers. The cry is false.

The very costly road improvement that some opponents of the good roads movement are pleased to say is proposed by the advocates of good highways (and which a few extremists may possibly contemplate) is not seriously advocated. The people that are for good roads are fully as sensible and practical as the average of mankind. While real, permanent road improvement is insisted upon, it is not proposed that good sense and true economy shall not guide road improvement.

People now living heard it asserted, when it was proposed to pave the streets in some of our largest cities of that time, that the people could not bear the expense, that it would bankrupt the tax payers, and that paved streets were an extravagant luxury that could not be justified; but the paving of these streets did not lead to any of the dire results predicted. Within the past ten years the writer has heard it iterated and reiterated in half a dozen flourishing cities of 20,000 to 50,000 population, in which it was proposed to pave with brick or stone the principal streets, that the tax payers could not and would not submit to the increased burden; that the proposal to pave the streets was the idle, chimerical proposition of dreamers and propertyless people; that the paving would not add a dollar to the value of even abutting property; and that every dollar spent for paving was so much taken from the pockets of the people without any return other than the gratification of a few men having bicycles or fast horses. If the paving was to be done by special assessment on the abutting property, the cry of mingled anger and distress was yet louder and more bitter. It has been declared that the people could not pay the special assessments; that the paving was a virtual confiscation of the assessed property; that the property owners would not be benefited; and that the courts would be successfully invoked to prevent the robbery. Yet the paving was done, was paid for; the ground assessed was not confiscated, the abutting property was made more valuable, and the people would not now listen to the stories they so firmly believed only a few years ago. What was then thought to be an extravagant luxury has now been proved to be an economical necessity; what was then supposed to be a gross loss to the property owners has proved to be a net gain to them. The capital that, it was asserted, was made dead capital by its burial in the streets, and the withdrawal of which from active use would paralyze the industries

and retard the growth of the city, has proved to be the most fruitful ever invested in the city. It has brought improvements and business and prosperity and outside capital and energy. While some cities have carried street paving too far (it would be miraculous if some mistakes had not been made) in the main, street paving has been so profitable and is so plainly advantageous and even necessary, that the proposition to go back to the old mud streets would be hailed with derision by above nine-tenths of the people, among which would be those once loudest in the denunciation of street paving.

We hear now urged against road improvement the same objections once raised against street paving — it is extravagant, it is not necessary, property is not correspondingly enhanced in price, the property owners can not pay the necessary taxes; it is disguised confiscation, and it is all because of a few cranks, bicyclers, and fast horsemen. Will not the parallel between street paving and road improvement extend yet farther?

The assault on street paving was led by, and the assaulting forces were nearly altogether composed of substantial, property-owning people whose judgment is trusted and whose opinions deservedly have weight. The fact that the same class in the country is most opposed to road improvement is adduced as conclusive evidence that roads should not be permanently improved. It is true that the opinions of this class should be carefully considered, and their conservatism often makes them safe counsellors and the stay of the State in times of wild, precipitate public movements; but, on the other hand, their conservatism, their property interests, their very characteristics evidenced by the acquisition and retention of property, make them naturally opposed at first blush to public improvements, and of course their opposition is proportioned to the radicalness and the expense of the proposed innovation. Property owners must bear practically all the expense of good roads, which will benefit those that pay little or nothing. It is inevitable that some property owners should see the outgo more clearly and before the compensating advantages. Hence, while the opinion of these worthy people should be treated with all fairness and due consideration, their natural attitude toward public improvements should also be considered; then it will be seen that the fact that they are property owners should lessen as well as increase the weight of their objection; and then it will be explained why some of this class were so far wrong in their judgment of street paving. May they not be equally wrong in their judgment of road improvement?

I hold that the preponderance of evidence is that it is proper, kind, and patriotic to work for good roads. The first work to be done is to develop a real, persistent desire for good roads among farmers — the class that though it would be most

benefited by good roads, is most opposed to them. When this desire is developed we will get good roads and farmers will not find it very burdensome to pay their share of the cost. The man that complains of hard times usually unconsciously justifies himself by the condition of the seat of his trousers; and shiftlessness has the same result when it is an attribute of a class as of an individual. The world does not insist upon giving a kingly crown to the man whose strong liking it is to play with mean things while grovelling in the dirt; and this is equally true of any class. True charity gives bread to only those that can not work; for those that can labor the only true charity is opportunity to labor. Not even angels can help the man that will not help himself. Classes are aggregated individuals.

They can be uplifted only as they are induced to uplift themselves.

To better the condition of a class they must be brought to desire more strenuously, and their desire will be given unto them. When farmers are educated to better things, when they are troubled with that fine, intelligent discontent that is the basis of all advancement, they will have good roads, mail will be delivered to them, their educational and social advantages will be the equal of those of the city, their homes, equipages and dress will not justify reproach or ridicule, and their hours of labor will be shortened; and after all these things are paid for, the farmers will yet find more money in the purse than now. They will again have proved this true, "Ask, and ye shall receive; knock, and it shall be opened unto you." Yea, more; they will have proved that industrially as well as spiritually it is true that "whosoever hath, to him shall be given; and whosoever hath not, from him shall be taken even that which he seemeth to have."

The choice is theirs to be him that hath or him that hath not.

Chicago, Ill.

A SUGGESTION FOR PUBLIC SPEAKERS.

"I never in my life," said Dean Stanley to his wife, after a sermon in Westminster Abbey, "so touched the congregation. They were entranced; every eye was upon me from the first word to the last." "No wonder," said Lady Augustus, "your gloves were inside of your hat, and when you took it off they remained on the top of your head all through the sermon."

ANNUAL REPORT
OF THE
MASSACHUSETTS HIGHWAY COMMISSION.

AS the Highway Commission of this Commonwealth is a relatively new board, it seems proper to preface the account of its doings during the past year by a statement as to the legislation which has controlled its work.

SUMMARY OF LEGISLATIVE ENACTMENTS.

By an Act approved June 2, 1892, a Commission of Inquiry was established which was directed to report to the next Legislature concerning the condition of the roads in the Commonwealth, and to draft a bill providing for the improvement of the highways of the Commonwealth. The report was made in February, 1893.

The project for a law, as framed by the Commissioners, was with some changes passed, and became a law on June 10, 1893. This bill provided that each road proposed as a State highway should be petitioned for by the County Commissioners of the county in which it lay, or by two or more cities or towns, and that, if approved by the Highway Commission, a separate bill for the construction should be by that Board submitted to the Legislature.

Under this law a number of petitions for the construction of State roads were received, and the work of preparing the projects for legislative action was begun.

Before any bills for the construction of State roads were submitted to the General Court, an Act was introduced which became a law June 20, 1894, which changed the powers of the Commission and the mode of action of the local authorities in several important respects. The Selectmen of any town, or the Mayor and Aldermen of a city, as well as the County Commissioners, were authorized to petition the Highway Commission for the taking over of a road as a State highway. In place of separate bills for the construction of each road to be submitted to the Legislature, the sum of three hundred thousand (300,000) dollars was voted to be used by the Highway Commission in constructing State highways without further legislative action.

ACTION OF THE COMMISSION UNDER THE EXISTING LAW.

Owing to the considerable changes in the law it seemed to the Highway Commission necessary to call once again for petitions, and to again adjudge their relative claims for State aid. One hundred and eight (108) such petitions have been received.



ORDINARY COUNTRY ROAD AT WESTFIELD, MASS. DRAIN TILE LAID IN TRENCH,
WHICH IS AFTERWARD FILLED WITH BROKEN STONE.

As roads of good quality cannot be built in times of frost, it was deemed necessary to notify the authorities of the municipalities that it would be inexpedient to begin work this year on roads which might be petitioned for after August 1, 1894. From the petitions received before that date a selection was made of thirty pieces of road in different parts of the Commonwealth before the setting in of winter.

From the appropriation of three hundred thousand (300,000) dollars, nine thousand (9000) dollars was set aside for office expenses, salaries, surveys, and general executive work, and the balance of two hundred and ninety-one thousand (291,000) dollars was distributed by counties as follows :

Barnstable.....	\$ 15,000
Bristol	20,000
Berkshire.....	24,000
Dukes.....	10,000
Essex	25,000
Franklin	24,000
Hampden.....	24,000
Hampshire	24,000
Middlesex.....	25,000
Nantucket	10,000
Norfolk	20,000
Plymouth	20,000
Suffolk	20,000
Worcester.....	30,000
	\$291,000

Owing, however, to the delays incident to the adjustment of the locations of proposed roads, and the re-location of street railways to conform to the new conditions, it has not been feasible to undertake construction in all the counties. Under the circumstances, considering the very short time at their disposal in which to arrange the numerous and troublesome preliminaries of each piece of work, the Commissioners feel that they have been fortunate in beginning the task of constructing State highways at so many and so well distributed points.

In deciding which of the many petitions, or the portions thereof, should be accepted for construction during the first year of work, this Commission has in each case visited the locality and gathered information as to the value of the road to the people and the cost of the proposed improvements. In all cases the plan has been to accept the way which might, on account of its importance and its ill condition, afford the greatest relief to interested communities if taken over as a State road and properly improved and maintained. One of the results of this policy has been to make the average expense per mile of way constructed somewhat greater than it will be hereafter, provided the system of building State roads shall be carried on for some years to come.

Owing to the small amount of the appropriation as compared with the number of calls for aid, it has been deemed best at the outset to limit the amount of road to be built in any city or town to a maximum of about two miles, or to the length which would afford substantial relief to the community, and serve also as an object lesson, showing the proper methods of highway construction. Nearly all of the petitions which have been presented have been for lines of road which connect considerable centres of population. The portions elected for construction have been taken with a view of bettering highways for the use of the people of the neighborhood. When thus granting a portion of a petition, the remainder has been placed on file for further consideration in case there should be further grants made by the Legislature for the continuance of the work. While the immediate, though temporary, results of this method are to bring about a fragmentary distribution of the State highways, no other plan could be devised which would meet the requirements of the law or the rightful demands of the people.

When possible, the opinions of the County Commissioners as to the relative value of the proposed roads have been obtained. More than one-half of the ways which have been undertaken have received the approval of the several County Boards. The action of the Highway Commission in the county of Dukes County, Essex, Middlesex, Nantucket, Berkshire



LAYING TELFORD FOUNDATION.

Franklin, Hampden, Hampshire and Bristol Counties have in most part rested on petitions from their County Boards, and in several other counties where the towns have petitioned, these officers have given valuable advice as to the most important of several competing projects.

Under the provisions of the law contracts for the construction of the roads can be made either with the municipality in which the way lies, or, in case the local authorities do not elect to so contract, with other persons or with private corporations. Contracts for carrying on the work can be made with the city or town directly without the approval of the Governor and Council. Contracts with other parties have to be made after public notice and with the consent of these higher authorities, a process which demands much time. Therefore, because of the approaching winter, the Commission felt it necessary to avoid taking in hand any construction for which the municipal authorities were not willing to contract. In practice this proved to be no hardship, for with one exception all the cities and towns in which it seemed well to begin the work were willing to undertake the task. So far as has yet appeared the local authorities are content with the method of doing the work. The Commissioners believe that it is best because it guards the community against evils which are apt to arise from the impor-

tation of foreign laborers. Moreover it teaches the townspeople the art of road building, and protects the State against the interest which private corporations might have in cheapening the work.

FORM OF CONTRACT FOR THE CONSTRUCTION OF ROADS.

As will be seen by reference to the form of contract which is made with the local authorities, the work is to be paid for, not in bulk, but by units of construction, the price paid being based upon the various kinds of grading and excavating, the telford foundations, the culverts and drains, as well as the superstructure, etc. In practice the specification of items is carried considerably farther than is indicated in the printed form. Thus, in the matter of superstructure the reckoning is separately made for the cost of the broken stone, for hauling, spreading, watering and rolling the same, and for supervision. Where the stone is not bought in the broken state a further account is taken of the price of the stone and the expense of hauling and breaking it. By doing the work in this manner a closer approximation is obtained to the actual cost, a basis on which all the contracts have been made.

A provision has been inserted in the contract to the effect that they should not be sub-let. This is construed to mean that while the whole undertaking cannot be turned over to a contractor, the separate items, as, for instance, the work of hauling stone, grading, etc., etc., might be let to private parties. In most cases the towns have taken this course, and their authorities, as well as the Commission, are satisfied with the result.

When the construction of the road is to begin the Commission appoints a resident engineer, who is constantly on the ground while the work is in progress. This officer keeps a tally of all the items which the State is to pay for, entering the same on the form as shown in the appendix (see Appendix B). When possible each load of stone is weighed. When, as in some cases, this cannot be done conveniently, standard loads are tested for weight and the filling of the carts kept to the gauge. Provision is made for payment for work done each month.

So far all the contracts, with one exception, have been for broken stone roads. In some cases it has been required that the broken stone shall be of trap-rock, but in many cases the relatively great cost of this material, and the low cost of maintenance due to light traffic, has led to the use of ordinary field stone or the boulders from river beds prepared in crushers temporarily set up along the line of working. It is not unlikely that some of these experiments with the local varieties of rock



LAYING MACADAM ON AN EARTH FOUNDATION.

may prove to have been ill advised, but as the expense of constructing may often be reduced to the amount of one-half by the use of field or river boulders, instead of the trap-rock, it has seemed worth while to take the risk. Where the local materials thus used do not turn out to be economically serviceable, the mistake may be remedied by surfacing the way with a thin coating of the costlier material, or by searching out some deposit of dyke stone which may exist in the immediate neighborhood. As will be noted below, none such undiscovered "trap" deposits evidently exist in this State.

In the case of the Hingham road a contract has been made for the surfacing of the way with a variety of gravel which has already been tested for such use. The cost of a road made of this material is considerably less than that of a broken stone pavement made under the same local conditions. The expense of repairs has yet to be determined. They may possibly be somewhat greater than in the case of a broken stone superstructure, but it is believed that the system may be economical in other localities whenever gravel of good cementing qualities can be conveniently obtained.

In determining the width of location of the accepted ways, the Commission has in each case considered the probable extension of the traffic, and the likelihood that a location for street

railway should be established on the road. Care as to the last mentioned point is the more important for the reason that the power to grant such franchise on the State roads appears under the law to be retained by the local authorities. In most cases it has seemed advisable to clear away the recent encroachments on the original location, so that the right of way will be from forty to sixty feet in width. Although the law authorizes the Commission to condemn the required land at a valuation, it has seemed best, on account of the expense, to avoid such action, the local authorities being asked to obtain releases of the required land before the Board voted to accept the way. In almost all instances the betterment to the land owner to be derived from the construction of the road has been far greater than the injury inflicted by the widening of the road. It has, therefore, been an easy matter for the town officers to procure, in most instances without payment, the necessary releases. In only one case has it seemed fit that the Commission should pay for land damages, i. e., that of the Goshen road. Here, in order to bring the grade down from eleven feet to about four feet in one hundred, it was necessary to adopt a new route for a considerable part of the way, with a resulting distinct damage to the owners of the land.

When it comes to accepting roads as State highways, the Commission had, in cases where there were sidewalks, or likely to be such, to determine whether to include these footways in their taking. To acquire the sidewalks, meant to render the State responsible for their safe keeping, and for accidents which may arise from any defects in their condition. This point was evidently unforeseen by the framers of the law, who clearly had in mind the wheel ways alone. On this account, and pending such legislative action as may be adopted, the plan has generally been followed of omitting the sidewalks, or strips wide enough for their construction on either side of the part of the road which has been acquired for the State. A better method of accomplishing the same end would be to so modify the law that while the State lays out the entire width of location, including sidewalks, the construction, care, maintenance and liability shall remain, as provided for in the Public Statutes for the foot ways, which, unlike the central portion of the road, are of purely local use and value.

WIDTH OF WIDENED WAY.

As regards the width adopted for the hardened way: The Commissioners have considered that the main aim of the laws under which they were acting was to secure the greatest possible length of good roads at the least possible expense. They have therefore limited the width of the hardened portion to the actual needs of the existing traffic. In only eight instances



ROLLING THE FIRST COURSE.

has the hardened section been eighteen feet or more in width, and in these cases by reason of the amount of travel. The remaining thirty pieces contracted for have a width of fifteen feet. So important has it seemed to the Commissioners to gain length of way, that in certain thinly settled portions of the Commonwealth they are considering the advisability of building "single track" roads having a width of nine feet, with frequent places of double width way which may serve as passing points for carriages. Carefully prepared ways of this narrow kind are found in some of the countries of Europe, where the most attention has been paid to road construction. It may also be noted that in south-eastern Massachusetts such narrow ways, with turn-outs arranged so that drivers may always have access to one after sighting each other, have been in use since the settlement of the country. The only serious objections brought against these ways is that driving in the night-time is apt to be a little inconvenient unless the vehicles are provided with lanterns, for the reason that they are likely to come together at some point where passing would be difficult.

Evidence which has been taken concerning the single track ways of the Cape district makes it clear that so long as the traffic does not exceed an average of from six to eight vehicles

an hour during the day time, and when the night travel is small, the objections to the narrow type of way very rarely are strong enough to lead the people to open the road to the average width of the public ways. Including the expense of preparing the road bed for the material, it is probable that in some instances one and one-half miles of way nine feet wide can be built at no more cost than one mile of fifteen-foot track, but in most cases the difference of cost would be much less, and the cost of maintaining would be proportionally greater, while the cheapening of taking goods to market would be about as great with the narrow road as with the wider. Moreover, if, after a term of years, it should be found that the way in question subjected the people to unnecessary inconvenience, it could be widened without incurring much greater aggregate cost than would have been the case if it had been originally constructed of the usual width. It may be expected that a good deal of opposition will be made to these single track roads, and it is an open question whether or not the cost during a term of years will not be as great on the narrow as on the average width of road.

LIMITATION OF GRADES.

The question as to the maximum grades to be allowed on the State roads has much engaged the attention of the Commission. In France, and elsewhere in Europe, no cost is spared to reduce the grades to, or below, five per cent. An examination of the topography of the State has shown that to fix such a limit would involve the expenditure of an exceedingly large amount of money, and it has therefore seemed best not to adopt any fixed rule concerning grades, but to make the determination with the reference to the traffic and the cost of maintenance of each road. In the Berkshire Hills, where many of the ways which are likely to be acquired by the Commonwealth have occasional grades of from seven to ten per cent., it may be advisable to adopt a heavier grade until the needs of the district are provided for, rather than to delay the progress of the work by seeking a more ideal system. To reduce the declivities of these roads to say five feet in one hundred would in many cases require complete re-location of the ways. In some cases the projects can be so contrived that the steep grade can be reduced by short detours without effecting the general plan of the ways. In a word, it seems wise for the present to limit the work of improvement mainly to the existing lines of road, accepting in the process the routes as they exist, except where it is expedient to insist on the widening of the location.



ROLLING THE SECOND COURSE.

SHADE TREES.

The Commission is directed, when feasible, to plant trees along the State highway. It is impossible with the present data to estimate the cost of planting and maintaining shade trees along State highways. From crude estimates based on present information, the ultimate cost of such work may be one million dollars. It seems doubtful to the Commission, with this limited knowledge, whether it would be advisable to attempt the planting of shade trees during the coming year. The Commission has taken much advice from experts concerning the best varieties of trees for planting, and has had observations made in the climatic and soil divisions of the State as to the species which have proved most successful by the wayside.

It has been suggested that elms, both American and English are so subject to the attack of insects that their protection from these pests would prove too costly, and also for the reason that their roots, extending as they do for a great distance, are injurious to the land beside the ways. On the other hand these trees are fairly quick growing and hardy, the shade is high above the ground, where it works less injury to the road, the side roots can be trimmed off with little injury to the tree, and the leaves falling on the ground cause but little obstruction in the gutters. These trees are to be found in all parts of the

Commonwealth in beautiful proportions and great age. The oaks should possibly be excluded on account of their slow growth and low shade, though they may be used in some cases between trees which develop more rapidly, with the intention of in time removing the last mentioned kinds.

The maple is quick growing and beautiful, with broad spreading limbs near the ground, shading the road to its injury. A slight cutting of the roots, rendered necessary if placed along the highway, tends to injure, if not kill the tree.

It is an open question whether it would not be well to make a large part of the plantings of our American nut trees, the white and black walnuts and the species of hickories and chestnuts. It is the custom in Continental Europe to plant the roadways with trees which yield profitable crops. In France and Germany the ways are often shielded with cherry trees, and in other countries mulberries are planted to afford leaves for the silk worms. Chestnuts, English walnuts, etc., serve both for shade and crop. In those countries the yield of wayside trees belong to the neighboring land owner, or in some cases to the community, and their product is as well guarded by law and custom as any other part of his property. To the proposed use of nut trees by the wayside, it is objected that the species of this group have less dignity of form than many others, and that they would most likely be damaged by persons seeking nuts before they had fallen, and particularly that such trees would litter the way in an offensive manner, and obstruct the gutters and culverts, causing dangerous and expensive washouts. As regards this question of tree planting the Commissioners would be glad to receive advice and information from the citizens of the State. Although planting should be begun in the spring of 185, it will at first be carried on slowly and in an experimental way.

The experience of this year has shown that in many cases it is possible to cheapen, in an important way, the cost of a road by making a careful study of the local deposits of stone which may be used in its construction.

The experimental work has been carried on in the laboratory of the Lawrence Scientific School of Harvard University, which is devoted to problems of highway engineering. The apparatus used has been provided by the School, the only expense being for the services of employees of the Commission who are engaged in carrying on the tests. The aim of these inquiries has been to determine the nature of the qualities which constitute fitness or unfitness of the different kind of rocks for use in road making, the effects of diverse methods of treatment used in the process of construction, and the relative value of the bed-rocks and gravels which are found in the several parts of the State. In a number of instances these determinations



ROLLING LAST COURSE.

have already proved very serviceable in guiding the choice of the kind of stone to be used in the work. When these laboratory tests have been checked by practical trials of the materials on roadways, their indicative value will be so well determined that the grade of a particular variety of stone for highway purposes can be quickly and economically determined. It is believed that this work will not only be of advantage to the Commission, but that it will also serve to better the methods of road making which are now in use in this country.

CO-OPERATION OF MUNICIPALITIES.

It should be noted that generally throughout the State the cities and towns have heartily co-operated with the Commission in the work, rendering all assistance possible in procuring suitable location for the road and road machinery, and information as to material, flow of water, and condition of the road at different seasons.

Some of the towns have appropriated money to build their main village streets in the same careful manner as the State highways are being built. Others have purchased road machinery to be used in the construction of State roads, with the intention of extending the same class of work in the towns.

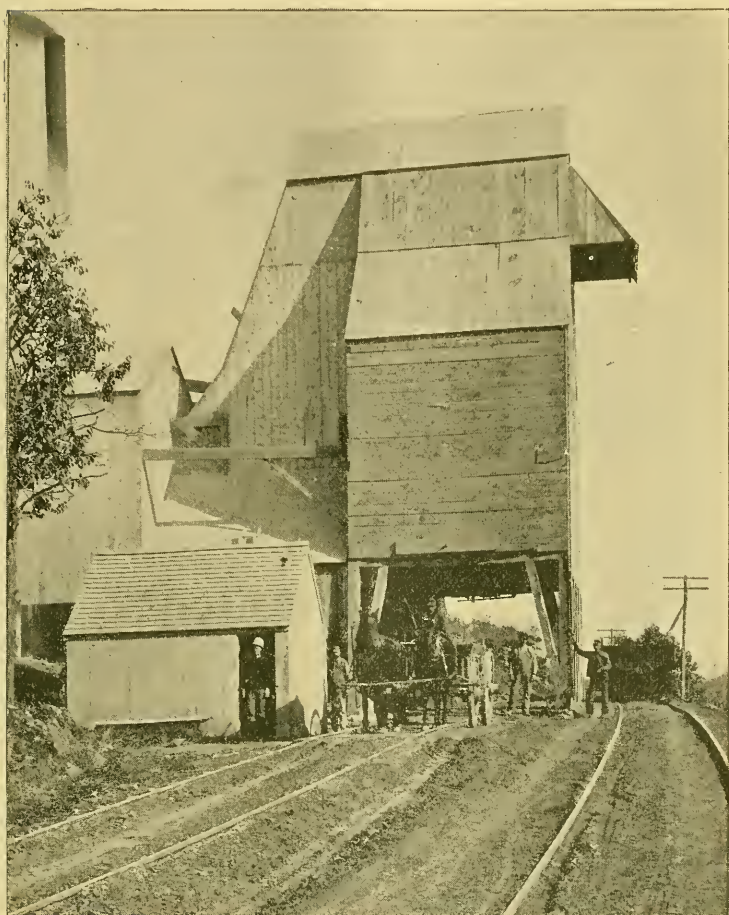
The town of Yarmouth has appropriated fifty thousand (50,000) dollars to be used to pay one-half the costs of such State roads as may be built in the town. The aim of this action is to bring about the construction of such of the ways of the municipality as may be deemed fit to be taken as State highways at the earliest possible time. Your Commissioners feel it to be desirable to avail themselves of this voluntary offer, to the extent of building two miles of road in one locality, instead of one, as would necessarily be the case without said aid. It seems not unlikely that similar offers will be made by other cities and towns. Your Commissioners therefore suggest that the legislation which guides their actions be amended to meet those cases where the municipalities wish to contribute to the cost of the work.

On account of the many separate roads for which it was necessary to contract, the Commission has found some difficulty in obtaining a sufficient number of skilled men to undertake the supervision of the works. Men who have served as Resident Engineers have devoted themselves to their tasks and it is believed that by their aid important mistakes have been avoided.

The cost of the stone used in macadamizing has in many cases been somewhat greater than it will be in further work on the same lines, as competition will reduce the price. Crushers, the value of which at the time the first contracts were made appeared to be so doubtful that the Commissioners did not venture to reckon on their use, have since proved to be serviceable. By the general use of these machines on the ways where good road building material can be obtained promises to spare the cost of transporting the broken stone to the nearest railway station and thence to the line of the road; charges which in some instances may be very heavy.

It may be said that the impetus given to the development of road making machinery by the numerous constructions which have been undertaken in Massachusetts promises to effect important improvements in such apparatus.

At the beginning of the work it was felt that many of the towns could not afford to purchase crushing machinery, as they could not be paid for out of the small amount of State work, and the small annual appropriations would not allow their use on local ways. This difficulty was overcome by agents of the different crushers furnishing plants complete with engine, elevator, screens and bins, and contracting to break the stone at a certain price per ton. This arrangement has generally worked well, although it will be necessary in future to insist that any crusher furnished shall supply a sufficient quantity of stone to give continuous work to the steam roller. In some few cases during the present year the cost of construction has



STONE CRUSHING PLANT AT WEST SPRINGFIELD, MASS.

been considerably increased by too small a daily supply of broken stone.

What has been said about the ability of towns to purchase crushing machines is true of steam rollers. There has, however been no difficulty in securing rollers to be used on all State work during the present year. In some instances where State roads have been constructed the towns own a roller, in other cases the rollers have been hired from towns and shipped to the work, and in still other cases they have been hired of private parties. The prices paid for rollers obtained in this way has

been fifteen (15) dollars per day, and the cost of transportation. The actual cost of running a steam roller is about five (5) dollars a day, not including interest and depreciation, or about seven (7) dollars including these items, assuming that a roller will be used during seven months of the year. Your Commissioners feel that the cost of constructing State roads will be largely increased, if the policy of hiring rollers is continued, above what would be the case if the rollers were owned by the Commonwealth. It is reasonable to estimate that if the Commonwealth owned the rollers a saving of at least three hundred (300) dollars a mile could be made, even after deducting five (5) per cent. of the cost of the roller for depreciation. Furthermore, there is likely to be difficulty in securing a sufficient number of rollers to carry on any increased amount of work. Taking into account these facts, your Commissioners feel that they are warranted in recommending that authority be given to purchase and operate a certain number of rollers if they feel that the best interests of the Commonwealth demand such action.

CONTINUATION OF WORK.

In order to finish many of the contemplated roads before the frosts of winter, it will be necessary to begin work as soon as the season opens. The Commissioners deem it to be their duty to say that in order to secure complete plans and cross-sections, and make a proper study sufficiently early to thus begin work, it is important that any appropriation for the further construction of roads should be made before March 1.

ORGANIZATION OF FIELD AND OFFICE WORK.

Owing to the large amount of work required in the field studies, preliminary to the acceptance of a road, that is demanded in these sets of plans and contracts required by the law, and the book-keeping connected with the task of construction, it has been found necessary to employ a considerable executive force. This force is constituted and organized as follows:

The general office work is under the charge of Mr. A. B. Fletcher, Clerk of the Commission. He is assisted by Mr. John M. McCarthy, stenographer, and Mr. A. H. Blevins, book-keeper. Mr. Edward A. Austin has acted as messenger.

Mr. Charles Mills has charge of the engineering work, both in the office and in the field. Under him, engaged in drawing plans, the following persons have been employed: Mr. H. V. Sandford, Mr. C. A. S. Howlett, and Mr. G. E. Barstow. Mr. J. C. S. Taber, Mr. T. M. Keene and Mr. J. W. Pierce have been employed on surveys. The following is a list of the persons who have served as resident engineers of the works:

Bigelow, F. S.,	Plymouth,	Plymouth County,
Blaisdell, J. A.,	Great Barrington,	Berkshire County,
Boecklin, W.,	Wrentham,	Norfolk County,
Brooks, S. S.,	Hadley,	Hampshire County,
Brown, C. L.,	Fairhaven,	Bristol County,
Crowell, J. H.,	Tisbury,	Dukes County,
Everett, P. H.,	Northampton,	Hampshire County,
Farr, L. N.,	Lee,	Berkshire County,
Farrington, W. R.,	Hingham,	Plymouth County,
Farrington, W. R.,	Cottage City,	Dukes County,
Floyd, F. G.,	Nantucket,	Nantucket County,
Foster, E. S.,	Shelburne,	Franklin County,
Foster, E. S.,	Buckland,	Franklin County,
Frohwitter, C. L.,	Marshfield,	Plymouth County,
Hammersley, W. P.,	Granby,	Hampshire County,
Johnson, C. H.,	Walpole,	Norfolk County,
Johnston, J. A.,	Mattapoisett,	Plymouth County,
Marshall, G. D.,	Russell, Fairfield End,	Hampden County,
McCarter, F. W.,	Marion,	Plymouth County,
Parks, Oren E.,	Westfield,	Hampden County,
Power, E. P.,	Russell, Huntington End,	Hampden County,
Ruggles, E. F.,	North Attleboro,	Bristol County,
Shaw, Stillman,	Leicester,	Worcester County,
Shaw, Stillman,	Duxbury,	Plymouth County,
Tower, T. P.,	Goshen,	Hampshire County,
Warren, H. E.,	Holden,	Worcester County,
Wheeler, R. C.,	Ashby,	Middlesex County,
Wheeler, W. B.,	Fitchburg,	Worcester County,
Wheeler, W. B.,	Westminster,	Worcester County,
Whittemore, A. H.,	Pittsfield,	Berkshire County,

It should be noted that nearly all the above-named gentlemen are temporarily engaged. Until construction is resumed there will be required only the force necessary for the field and office work demanded in the discussion of projects to be undertaken next year, and for the needed inspection of the work already done.

TAX VEHICLES IN PROPORTION TO THE INJURY THEY DO THE ROAD.

THOSE public spirited men who are the holders of political offices are ever studying how they can procure the means for meeting public expenses and incidentally paying their salaries, and of late they have been turning their attention toward wheeled vehicles, and scheming in every way possible to draw money from the owners; compelling the use of wide tires, and imposing a fine as a penalty for not complying with this demand is one way. Another scheme has been devised, which may or may not be carried out; it is to compel every owner of a private carriage to register it, for the purpose of taxation. It is possible that under the new city government this tax may be averted, but owners are on the lookout, and there will be a strong fight against such a law. If vigorous steps are not taken it will not be long before a tax will be imposed on vehicles that will curtail their use to an extent that will prove serious.—*Hub News*.

STRIKING FACTS ABOUT HILLS.

BY GEN. ROY STONE.

[Although this particular talk applied to New Jersey, it is equally valuable to most other sections.—Ed.]

WHEN I spoke to you last month on the great work you have undertaken I had but little knowledge of the special difficulties of your task, and could only congratulate you on what you had already done and offer some general suggestions for the economical construction of your roads.

To-day I can speak much more definitely. I have driven over a great part of the county to see what your roads are and what you can make of them, and I am compelled to say to you that in my opinion throughout three-fourths of the country you can do no good by macadamizing the roads unless many changes are made in their location. On the contrary, you will do great harm, for you will prevent the making of such changes in the future.

Any costly resurfacing of the existing roads will fasten them where they are for generations. Your chief difficulty is not with your road surfaces, but with their high grades, most of which are too long to be reduced by cutting and filling on the present lines. Your roads were laid out, as is the custom in this country, without any attention to the general topography, and generally by following the settlers' path from cabin to cabin or by running along their farm lines, regardless of grades or direction; and most of them still remain where they were laid and where untold labor has been wasted in trying to improve them.

No hilly region was ever better provided with natural roadways. Low summits divide the waters of all your great intervals, and all your high plateaus have gently sloping valleys leading up to them. But your roads climb the steep hillsides, or, where they follow the valleys in the main, they cross all the foothills they come to instead of skirting round them. It would have been worth many millions to you to have had them systematically and skillfully laid out in the beginning.

Your hill townships would have been rich and prosperous to-day, and your towns would have shared in their prosperity. All your leading roads would have been kept down to the limit prescribed for hilly regions in other countries; that is, to a four per cent. grade, or four feet rise in 100, instead of 10, 12 or 15 per cent., as you have them now. And if this had been done, one-half the cost of all the hauling that has ever been done to and from your farms and forests, mines and manufactories,

mills and stores would have been saved. How much would this have amounted to?

Take the Mendham and Morristown road, for example. Running from one place to another in the same valley, it goes over four great hills. Its traffic is drawn from a large territory, but the township of Mendham alone, at the low estimate of half a ton per acre carried annually, out and in, and at the rate of one dollar per ton extra for the hills, pays a hill tax of \$7,000 per year on its 14,000 acres. At the same rate for the other hill townships the total tax is over \$100,000 per year.

This is the burden you now have the power to lift off or to fasten on those townships forever. Multiply it by 100 and add 50 years interest and see what it would have been worth to have dropped it a century ago. If these figures seem extravagant, go over them for yourselves.

The average haul from the hill districts is not less than eight miles, and \$2 per ton is not high pay for it. You will not doubt the saving of one-half of this by cutting down the hills if you look at the four per cent. grade in Court street, alongside this building, and then at the ten per cent. hill above, which is less than the ruling grade on most of your roads.

As to the amount of haulage per acre, if the whole district were in thrifty timber its yearly growth would be over one ton per acre (as is shown by the German Forestry Reports), and its present marketable product, with all the incidental hauling, cannot well be less than half as much.

You are the first body which has ever had any authority over the road system of the county or which could take up the subject from the high standpoint of the general public interest. It is true your authority in the matter is only negative, but it is none the less absolute. You cannot change a single road, but you have only to say that you will not waste the county's money in stoning roads which are mislocated, and the roads will be promptly changed as you require. If not, you can wait, and you are quite as much responsible for the final result as if you had full power to make changes.

It is clearly in your power to adopt a limit of grade above which you will not improve any road unless for special reasons shown. I am sure you will be justified by the people of the county in fixing a low limit, and applauded for spending a large portion of your funds in reducing the roads to that limit, either by cutting down hills or by going round them where it is necessary. This improvement is of ten times more consequence than improving the road surfaces where they are hilly.

In the first place, you cannot materially improve the surface on a steep hill by stoning it, for it is naturally dry and hard. In the second place, for eight or nine months in the year your surfaces, for either wagons or sleighs, are good enough, while

the hills will cut down your loads all the year round. According to the best authorities, you cannot gain more than a quarter or a third by macadamizing on a ten per cent. grade, while by cutting that grade down to four per cent. you can double your load; and then can double it again by macadamizing the low grade.

The four per cent. limit is fixed wherever it is practicable, because it is the highest grade which a horse will trot up with ease and down at full speed with safety. And again, for loaded teams, it is found that a horse by extra effort can pull twice as much for a short time as he can for all day, and a fair stone road at four per cent. rise will just double the pull that is required on a level. So that a team loaded for a long pull on a level stone road will take its load up a four per cent. hill without difficulty, by resting occasionally, if the hill is long. With your hills reduced to four per cent. and the roads stoned, farmers will be able to haul loads of four tons in all parts of the county, as is done now on the "State aid roads" in Camden and Burlington Counties.

Some of the manufacturers in this county have paid and are still paying a higher hill tax even than the farmers. The road from Morristown to Whippany, which should have been a straight and easy descent of three and one-half miles, takes three miles and three-quarters and goes over three hills, with a total rise both ways of 400 feet. One hundred and fifty tons of coal and mill freight are hauled daily over this road. The extra distance, and the hills, which are equal to two miles more, render it impossible to make more than two trips a day, and, though very strong teams are employed, and loads of 1 1-2 to 3 tons are hauled, the cost is 80 cents per ton.

With a straight stone road, descending in the direction of the heaviest traffic and ascending by light grades in the opposite direction, the same teams would make three trips (21 miles) and double their loads, thus reducing the cost to 27 cents per ton and saving \$2000 per month. This sum, then, is the hill tax and mud tax combined, and the former is clearly three-fourths of the whole. The whole tax would build the new road in nine months.

Many other roads in the county are worse even than those to Mendham and Whippany. From Boonton to Butler the road is steep and stony, and *half a mile longer than the valley alongside*. Returning from Butler through the great valley region of the county, I expected to find a fine highway to the county seat, but at Pompton Plains I was told there was no road to Morristown; that all the travel was to Newark and Paterson; and it is true there is no road through that straight and level valley. To reach Morristown I turned sixteen square corners and climbed up and down 2150 feet of hills, making a

hard half day's journey of what should have been an easy two hours' drive.

If the new road to Whippany is made, an extension of eight miles through the meadows and a cut through the rock ridge which divides them from the plains will open all the northeastern part of the county, and the cutting will cost nothing, as the rock is good road metal. The northwestern section can be equally benefited by cutting through the summit at Green Pond Mountain on the Hamburg Pike (which is also good rock in boulders) and passing around Maize Mountain through the adjacent valley, without increasing the distance, while avoiding one of the most difficult and dangerous passes in the county.

The great thoroughfare through from Essex to Sussex is well laid and graded from Chatham to Morris Plains. Thence westward it is crooked and hilly, but it can be straightened and shortened and the hills avoided, except for a gentle rise to the higher level of the lake. In the western part of the county, Mt. Olive, Schooley's Mountain and Chester can all be reached from both sides by four per cent. grades, and Mt. Freedom can be crossed at three per cent. with less than half a mile increased distance.

For the whole county 75 to 100 miles of new road will be needed, which, if well built, will take one-third of your whole fund. But it will be money well spent, and will give you a splendid system of highways to commence your surface improvement upon. But, as the Spaniards say, "you cannot make omelets without breaking eggs," and you cannot correct the mistake of four or five generations without hurting somebody. You will encounter violent opposition to many of the necessary changes and your great danger will be of yielding to local influences before there is time for the public to come to your support. But if you go slowly at first, if you fix your limit and do not allow yourselves to be rushed into any departure from it until you are sure that the whole county will justify you, all will be safe.

Many of those who fancy they will be hurt by the changes will find themselves benefited instead, and if you simply mark out your new lines and postpone action on them till the people are familiar with their advantages, you will find your way made easy in nine cases out of ten. If, on the other hand, you make no limit and throw the whole burden upon the local freeholders in each case, unless they are more than human your whole system of roads will be sacrificed to neighborhood influences, and you will have a beggarly piece of patchwork with the old hills and hollows, crooks and turns, perpetuated, and nothing to show for your county debt and extra taxation but a wasted opportunity and a bar to good roads for all time to come.



IN the
BEGINNING.



IN 1866.



IN 1868.



IN 1870.



IN 1893.



IN 1899.

CONCERNING FEET.

By Sterling Elliott.

"Feet of great men oft remind us,
We may make our own sublime,
And, departing, leave behind us
Fearful tracks along the line."

THUS sings a Chicago poet. These jokes about feet are just as good as any jokes, but to me there is a serious side to the human foot which is not always considered as it should be.

The "young man" is kicked out by the "stern parent" and the world laughs and jokes about it just as though it was awfully funny, but to those most interested, those who would be expected to see the mirth in it if there was any, it contains naught that should cause even a smile.

It is a significant fact that there were no chiropodists among the American Indians, until

Civilization like a deadly blight
Came o'er the red man's wild retreat,
And gave him new religious light,
As well as corns upon his feet.

The feet which were used by Adam in his morning walks among his wife's flower beds were much the same shape that human feet have been made ever since. I feel sure about this, because I saw a photograph of Adam not long ago in a museum and was informed by the young lady in charge that it was taken from life. Assuming, as I feel privileged to, that natural human feet do not change materially from year to year, a cause of no little speculation on my part has been this rapid evolution from one shape to another, of the apparel which is made to be worn on these same feet.

Of course you have heard the old conundrum, "Why is a sword made curved?" Answer: "So that it will fit the scabbard."

Well, that style of conundrum doesn't hit the shoe question,

but perhaps this one would : " Why are shoes made pointed ? " Answer : " The Lord only knows. "

There is one encouraging feature yet, and that is that the deformity hasn't become hereditary. Babies are born with natural feet, and so long as this is the case we may hope.

When Noah sent the dove out of his ark " to see if it had cleared off, " it is reported (see Genesis VII, 9) that " she found no rest for the sole of her foot, " and I thought as I read that, how much this dove was like the modern young lady, and yet if the dealer in foot gear should offer her " rest for the sole of her foot " she wouldn't take it, not even at a lower price.

An old-time poet who flourished in spite of his name (Sir John Suckling) said in describing a bride :

" Her feet beneath her petticoat
Like little mice stole in and out,
As if they feared the light. "

A singular thing about these little feet which " steal in and out " is that they really don't " fear the light " half as much as the larger ones do.

The GOOD ROADS' artist has drawn some of the many shapes into which the human sole has been cast at various periods within the memory of the present generation. His prediction as to the probable style for 1899 may be taken with a mental reservation, for I believe that in spite of the occasional idiotic fashion which seems to be for the time almost universal, that we may always depend upon the average good sense of the multitude to come together once in a while on those things which are best.



JOSHUA COMMANDING THE SON TO STAND STILL.



SUBURBAN ROADS.

BY STAMSON.

A PLEASANT memory of a delightful October afternoon was a quiet saunter on our wheels—Mrs. Stam. and I—through winding lanes under the rocky hillsides, crunching beds of brown leaves that in summer time had sheltered us from the sunshine and rain; passing the homes of the fisher-farmers along the cove, each of which has about it enough of poesy and the quaint and picturesque to fill a page. Then we turned southward and on down to the edge of the Sound's blue waters that in the middle distance were sea green, and farther away silver white where the setting sun lighted them up.

Beyond all was blue-gray Long Island, on which we could see in that light the yellow sand dunes and a white speck or two of houses. Eastward and up the Sound, sky and water seemed to meet, but was punctuated with gleaming white sails at intervals, and there was staunch old Stamford light.

Our last mile was on a road that had been made of gravel, nearly five years ago, and which has not had a cent spent on it for repairs since, showing all corners that it is much cheaper than a dirt road that has to be—or is generally—"worked" every year, besides being a thousand fold more satisfactory.

This was the first section of civilized suburban road making about here, and has long since made Sound Beach mildly famous as having the best roads in Fairfieldshire. Lately, though, they have been neglected until in wet weather the joy of wheeling over them is very much diluted.

No attempt has ever been made here to drain our roads, and in many places the bed is lower than the place where the gutters should be. Any boy six years old who would not use better judgment in road making should serve a good, long term — say six months twice a year — in a reformatory. I hope this will meet not only the views but the eyes of those individuals who yearly either entirely neglect the out-of-town roads, or, pile on gutter wash and make them vastly worse than if left to the kind offices of Nature.

As there is more than enough stone obstructing every farm to make a twenty-foot wide road in front of it, why do not some of our enterprising farmers set up a company stone-breaking plant, portable, and through the winter crush stone enough to make good roads before each man's premises, exchanging work and dividing the expense between themselves and the township or county?

Why lie about and grow rusty all winter when such urgently needed work should be done? One thing we want most at once is a law obliging all heavy wagons to have wide tires; then another that forbids any brainless person holding any office in connection with road making.

Again, reduce by one-half the taxes of every owner of land on highways if he or she is bright and progressive enough to see the advantage of and really do something for the making of roads that will not be a disgrace to themselves and the whole Yankee nation.

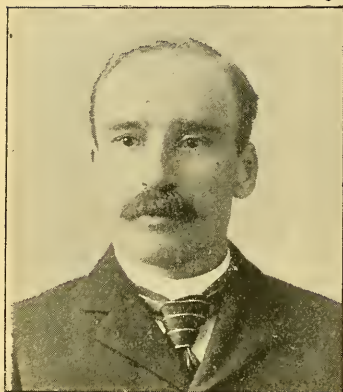
CLEAR AS MUD.

A MAN may steal a horse and yet not be guilty of theft. Paradoxical though this may appear, it is nevertheless a fact, according to the learned justices of the Arkansas Supreme Court. A resident of that Commonwealth hired a mare of a livery-stable keeper to go a-junketing to a neighboring town, where he traded the mare for a gelding, sold the gelding and finished his junket on the proceeds of the sale. Realizing subsequently what he had done, he at once stole the mare from the man to whom he had traded her and returned her to her original owner. For this he was arrested, but the court, on appeal, held that he was guilty of no crime, because he did not take the mare with, as the lawyers say, "felonious intent," but "merely," in the language of the court, "to restore her to her proper owner." His first theft of the mare was a felony, but his second theft of her was not, all of which, while it may be clear as day to the legal mind, is somewhat incomprehensible to people of average intelligence.—*Exchange*.

THE STATE ROADS OF MASSACHUSETTS.

BY GEO. A. PERKINS.

(*Chairman Massachusetts Highway Commission.*)



GEO. A. PERKINS.

ROAD improvement in this country is now an important factor in State as well as in municipal elections. It is incorporated into party platforms, and candidates must now declare how they stand upon this issue. This has been brought about by constant agitation on the part of those who have made a study of the question from an economic standpoint and who have realized the immense loss resulting from the bad condition of the ways.

In Massachusetts the question on a large scale was first brought before the Legislature in 1887. The people had not been made to realize the great importance of a better and more complete system of highways, so that at first the matter was not given that serious consideration it deserved. It was conceded that the roads were not of the best, but it was claimed that the cost necessary to improve them would be too great for the smaller towns to bear. It was argued to the Committee that much money was uselessly applied and wasted, and that there was an entire absence of systematic methods employed. It was shown that many towns were obliged to maintain long stretches of highway of little importance to them, but used as ways of communication between large centres. It was maintained that manufacturers, teamsters and farmers would be greatly benefited by the construction of a general system of roads, as the cost of transportation would be greatly reduced.

The subject was annually brought before the Legislature, each successive year finding a larger number of advocates. In 1892 the demand for action was so great that the Legislature gave it particular attention, and its committees gave a number of public hearings which were largely attended by people from every section of the State, all agreeing that the State should lend its aid and assistance toward the construction and maintenance of certain highways. The Legislature fully appreciated the force of the arguments, and realizing the great scope of the subject, enacted a law providing for the appointment of a commission of three to inquire into the entire subject and report to the Legislature of 1893, and granted a liberal appropriation for the purpose.

The Commission thus created immediately commenced work and at the outset could find but little data from any published reports as to methods and cost of construction and maintenance of roads. It at once entered upon a comprehensive plan to obtain the desired information by public hearings, communications with the different town officials and personal investigation by traveling over hundreds of miles of country roads. In its report made to the Legislature in 1893 the Commission showed the importance and necessity of legislation providing for a more uniform system of road construction and maintenance under scientific supervision. From the many public hearings given by the Commission and the replies to interrogatories sent to public officials, it became evident to the Commission that the existing system was defective, that the ways were in a generally bad condition and that the towns were unable to cope with the problem; that there was need for the State to undertake the construction and maintenance of a comprehensive system of State highways. Outside of the cities there are a little more than twenty thousand miles of roads in Massachusetts. It is estimated that from ten to fifteen per cent. of this number are roads directly connecting the towns and large centres, and such as might reasonably be asked to be made State highways. Fully fifty per cent. of the annual appropriation for highways is expended for the maintenance of these intertown roads. By relieving the towns of the burdens of maintaining such roads, it can readily be seen that the towns can use this appropriation for the improvement of their town ways.

After careful consideration of the Commission's report the Legislature of 1893 enacted a statute which with the amendment made by the Legislature of 1894 is the law of Massachusetts to-day. It provides for the appointment of three competent persons to serve as the Massachusetts Highway Commission. Their terms of office shall be so arranged and designated at the time of their appointment that the term of one member shall expire in three years, one in two years, and one in one year. The full term of office thereafter shall be for three years.

The duty and power of the Commission are defined, but among those of importance and value may be mentioned the following: They may be consulted at all reasonable times, without charge, by officers of counties, cities or towns having the care of and authority over public roads, and shall without charge advise them relative to the construction, repair, alteration or maintenance of the same; but advice given by them to any such officers shall not impair the legal duties and obligations of any city or town.

They shall each year hold at least one public meeting in each county for the open discussion of questions relating to the

public roads, due notice of which shall be given in the press or otherwise.

They shall each year make a report to the Legislature.

County Commissioners and city and town officers having the care of and authority over public roads and bridges throughout the Commonwealth shall, on request, furnish the Commissioners any information required by them concerning the roads and bridges within their jurisdiction.

The law also contemplates the building of State highways and provides, whenever the County Commissioners of a county, or the Mayor and Aldermen of a city, or the Selectmen of a town, adjudge that the public necessity and convenience require that the Commonwealth take charge of a new or existing road as a highway, in whole or in part, in that county, city or town, they may apply by a petition in writing to the Massachusetts Highway Commission, stating the road they recommend, together with a plan and profile of the same.

Said Highway Commission shall consider such petition and determine what the public necessity and convenience require in the premises, and, if they deem that the highway should be laid out or be taken charge of by the Commonwealth, shall file a plan thereof in the office of the County Commissioners of the county in which the petitioners reside, with the petition therefor and a certificate that they have laid out and taken charge of said highway in accordance with said plans, and shall file a copy of the plan and location of the portion lying in each city or town with the clerk of said city or town, and said highway shall, after the filing of said plans, be laid out as a highway, and shall be constructed and kept in good repair and condition as a highway by the said Commission, at the expense of the Commonwealth, and shall be known as a State road, and thereafter be maintained by the Commonwealth under the supervision of said Commission. And all openings and placing of structures in any such road shall be done in accordance with a permit from said Commission. Said Commission shall when about to construct any highway, give to each city and town in which said highway lies a certified copy of the plans and specifications for said highway, with a notice that said Commission is ready for the construction of said road. Such city or town shall have the right, without advertisement, to contract with said Commission for the construction of so much highway as lies within its limits, in accordance with the plans and specifications, and under the supervision and subject to its approval at a price to be agreed upon by said Commission and said city or town. If said city or town shall not elect to so contract within thirty days, said Commission shall advertise in two or more papers published in the county where the road or a portion of it is situated, and in three or more daily papers published in

Boston, for bids for the construction of said highway under their supervision and subject to their approval, in accordance with plans and specifications to be furnished by said Commission. Such advertisement shall state the time and place for opening the proposals in answer to said advertisements, and reserve the right to reject any and all proposals. All such proposals shall be sealed and shall be kept by the board, and shall be open to public inspection after said proposals have been accepted or rejected. Said Commission may reject any or all bids, or if a bid is satisfactory they shall with the approval of the Governor and Council make a contract in writing, on behalf of the Commonwealth, for said construction, and shall require of the contractor a bond for at least twenty-five per cent. of the contract price to indemnify any city or town in which such highway lies against damage while such highway is being constructed; and the Commonwealth shall not be liable for any damages occasioned thereby. All construction of State roads shall be fairly apportioned by said Commission among the different counties, and not more than ten miles of State road shall be constructed in any one county, in any one year, on petition as aforesaid, without the previous approval thereof in writing by the Governor and Council.

For the maintenance of State highways, said Commission shall contract with the city or town in which such State highway lies, or a person, firm or corporation for the keeping in repair and maintaining of such highway, in accordance with the rules and regulations of said Commission, and subject to their supervision and approval, and such contracts may be made without previous advertisement.

Upon the completion of the road one-quarter of the money expended is to be repaid by the county in which the way petitioned for lies, so that in the first instance the State pays for the entire expense, and collects of the county twenty-five per cent. In this way the towns and cities do not pay anything except the cost for the original survey for the plan and profile which must accompany the petition.

Said Commission shall keep all State roads reasonably clear of brush, and shall cause suitable shade trees to be set out along said highways when feasible, and shall renew the same when necessary, and may also establish and maintain watering troughs at suitable places along said highways.

No length of possession, or occupancy of land within the limit of any such highway, by an owner or occupier of adjoining land shall create a right to such land in any adjoining owner or occupant or a person claiming under him, and any fences, buildings, sheds or other obstructions encroaching upon such State highway shall, upon written notice by said Commission, at once be removed by the owner or occupier of adjoining

land, and if not so removed said Commission may cause the same to be done and may remove the same upon the adjoining land of such owner or occupier.

Cities and towns shall have police jurisdiction over all State highways, and they shall at once notify in writing the State Commission or its employees of any defect or want of repairs in such highways. No State highway shall be dug up for the laying or placing of pipes, sewers, posts, wires, railways or other purposes, and no trees shall be planted or removed or obstruction placed thereon, except by the written consent of the superintendent of streets or road commissioners of a city or town, approved by the highway commission, and then only in accordance with the rules and regulations of said Commission.

Said Commission shall give suitable names to the State highways, and they shall have the right to change the name of any road that shall have become a part of a State highway.

They shall cause to be erected, at suitable points along State highways, suitable guide posts.

It will be seen that the Commission cannot lay out State highways unless petitioned for.

The amended statute took effect June 20, 1894, and three hundred thousand dollars were appropriated.

The Commission notified all county, city and town authorities that owing to the lateness of the season action could be expected this year only on such petitions as should be received by the first day of August. So great was the interest that eighty-five petitions were received up to that date.

The statute requires that the Commission shall fairly apportion all construction of State roads among the several counties. The Commission apportioned the appropriation so that each county should receive nearly an equal share. It was thought wise to distribute the work so that sections could be constructed in as many places as possible, in order that the people could see what they might expect to be the policy and methods employed by the State, and that such roads would be object lessons.

Under the law the municipalities in which a section of road to be constructed lies have the right, without previous advertisement and without bond, to contract directly with the Commission for the building of the same.

The reasons for this are that the money expended shall go directly among the townspeople, that the officials and workmen may have experience in such work, and it creates an interest among the people for better and more systematic work and method on local roads.

Of the eighty-five petitions, the Commission has acted favorably upon thirty-seven and has contracted for that number of pieces averaging one mile each. These pieces in each

case form a link in a through road, and in all probability will be extended. In this way it will take but a few years to complete a system of State roads. It can fairly be assumed that every town in the State will petition, and in a few years a State road will have been completed or commenced in every town. It is the aim of the Commission that State highways shall be inter-town roads leading to the large centres.

The Commission furnishes blank petitions together with all necessary information. The law requires that each petition shall be accompanied by a plan and profile, the expense of which shall be borne by the petitioners. The Commission requires that all plans and profiles shall be of a uniform scale, forty (40) feet to the inch horizontal, and eight (8) feet to the inch perpendicular, samples of which and all necessary instructions are given. The State then causes cross-sections of the road to be made thus enabling a thorough study of the grades.

Although the Selectmen of a town or the Mayor and Aldermen of a city can under the statute petition for a State road, it requires the vote of a town meeting or the city council to authorize the Selectmen or Mayor to contract, so that in every case where the towns have contracted authority has been voted the officials. This shows that the people are in sympathy with the work.

As might be expected the officials at first were somewhat fearful of the risk to be assumed in entering upon such a contract, as from lack of experience and knowledge they might not be able to comply with the terms of the contract, as well as the liability of causing a loss to the town. But after thorough explanation, and their implicit confidence in the Commission, and the fact that a Resident Engineer representing the State was to be always on the ground to direct and explain, these thirty-seven municipalities have contracted and entered upon the work with excellent results.

The contracts are based on the unit plan, i. e., so much per ton for stone, so much per cubic yard for earth and rock excavation and for surface grading, so much per lineal foot for drains, fencing and pipe, so much per cubic yard for rubble masonry, so much per square yard for telford, etc.

From the fact that the work was begun so late in the season only five sections have been completed, the remainder being in various stages of construction and will be completed in the spring.

All work is done according to specifications and plans furnished by the Commission, the Engineer in Chief having charge of all the work. In each case a Resident Engineer or Inspector is provided who is constantly on hand to direct the work. He makes daily and weekly returns of all work done and all material used. The town has full charge of the labor

and teams, and all contracts for the same are made in the name of the town. In this way the work is progressing admirably, and the road officials of the town are being taught how to build roads in a scientific manner. The towns are paid for all work and materials used up to the fifteenth of each month.

With one exception broken stone has been used on all the roads.

Each road is carefully examined with reference to its natural soil, whether clay, loam, sand or gravel. Where the soil is clayey or heavy the Commission has used telford. The method of constructing this telford is to first shape the sub-grade to nearly correspond to the surface of the proposed finished roadway, and to roll this either with a steam or horse roller until it ceases to yield beneath the roller; to put in a drain on both sides if necessary, connecting the drain with some culvert, watercourse, or main drain. The drain is made by first excavating a trench to the depth of two and one-half feet below the centre of this sub-grade, the bottom of the trench being about one foot in width and the top from fourteen to sixteen inches wide. From two to three inches of gravel or broken stone are placed in the bottom of the trench, and on this is laid a five or six-inch vitrified clay pipe with open bell joints; then on this pipe gravel from one-fourth to three-eighths of an inch in size, or broken stone, is filled to the depth of about a foot; over this is filled coarser gravel or broken stone. The road surface is then covered with about four inches of gravel, and on this is laid the telford to the depth of about eight inches; the telford is carefully laid by hand, covering as far as possible the whole surface of the ground, their spaces being filled in with wedge-shaped stones driven downward, the whole making a solid pavement. This telford foundation is then rolled with a steam roller so that when compressed it will be four inches thick; on top of this is placed another layer of stone ranging from one-half to one and one-fourth inches in size which is thoroughly rolled by a steam roller to a thickness of two inches. No water is used upon these two courses. In this last layer of stone, from one-half inch to an inch of the finer stone and dust from the crusher is spread. This is wet and rolled, and constitutes the binder. The method and process of building the macadamized road are the same as employed on the telford foundation. The Commission has found that upon loose sandy soils such stone is wasted by being driven down into the sand; in such cases gravel, when accessible, has been placed upon the sand to a depth of three or four inches and on this is laid the stone. By so doing the cost of the work is greatly reduced. In one instance, on Martha's Vineyard, where the sand is very loose, cheap cotton cloth has been spread, upon this the stone is laid, and it is found that the sand does not work up through

the stone, and much less stone is required. Layers of tarred paper were tried, but without success, as the stones were pressed through the same.

Outside of the villages the width of the hardened way is made fifteen feet, with from two and one-half to three feet of gravel on either side. The crown on substantially level roads is made one-half inch to the foot, but on grades it is made greater. The thickness of the broken stone is in most cases six inches in the middle and four inches on the sides. In all cases a steam roller is required. On grades where considerable surface water is likely to flow, cobble stone gutters are laid on the sides.

The Commission has not established any fixed grades, but so far the maximum has been five feet in the hundred.

In some of the roads petitioned for there are street railway tracks. In each instance the Commission before it would lay out a road as a State highway has insisted that the municipal authorities cause the tracks to be located according to the plans of the Commission.

Whenever the lines of the road as proposed by the Commission have interfered with or cut off adjoining land, the towns have procured releases signed by the owners, relieving the State of any claim for land or grade damage.

At all angles in the road are placed stone monuments, six feet long, six inches square on top and dressed twelve inches from the top. On one side is cut the letters "M. H. B." standing for Massachusetts Highway Bound. The monuments are set five feet under ground.

When the road is completed and accepted, it is a State highway, and the State then assumes the maintenance of it ever after. This is one of the greatest advantages gained to the towns, as by this relief the annual appropriation can be used for permanent improvements upon other roads. One of the results of the work by the Commission is that towns are looking more to permanent work, and in some cases it has been voted at town meetings that a portion of the appropriation shall be set aside for such purposes.

At the beginning of the work by the State there were but few towns owning stone crushers and steam rollers. There were several large crushing plants in the State owned by private parties. Stone could be obtained from these and delivered on cars to points on railroads at an average price of one dollar and forty cents per ton. This was for stone delivered in proper sizes. But when the road to be constructed was a considerable distance from the cars, the cost of hauling brought the price so high that it became necessary to devise some other means. Therefore, arrangements have been made with parties owning crushing plants to set up a crusher, elevator, screen

and bins and break the stone at from thirty to forty cents per ton. The agents of the several crusher machines have entered into this, so that no difficulty is now had. In many instances the town has purchased a plant and breaks the stone. The town delivers the stone in sizes suitable for the crusher.

When a town does not own a steam roller, arrangements have been made with private parties and agents to let one to the town, the town paying for the use either by the day or per ton of stone rolled. As in the case of stone crushers many towns are buying rollers.

The Commission, as called upon by the law has given a series of hearings in the counties. These have been largely attended by people coming to seek information as to road building and maintenance. There has been great interest shown in the work of the Commission and enthusiasm expressed for the continuation of the State roads.

Surveys are being made by many towns, and by spring no doubt many more petitions will be received. It is believed that a substantial sum will be appropriated for 1895, and that the work begun will be continued.

WHERE IS THIS BLUNT OLD BRIDGE BUILDER NOW?

WE KNOW A HUNDRED PLACES WHERE HE IS WANTED TO
BUILD ROADS.

THE following good story comes from an authentic source. Some years ago the floods carried away a bridge on the Michigan Central, and until it could be replaced there was a suspension of traffic. Said the general superintendent to the blunt, hard-working old master bridge builder: "You must put all your men on that bridge; they must work all night, and the bridge must be completed by daylight. The chief engineer shall furnish you with the plan, and you go right ahead."

Early next morning the general superintendent, in a very doubtful frame of mind, met the old bridge builder.

"Well," said the general, "did the engineer give you a plan for the bridge?" "General," returned the old man slowly, "the bridge is done. I don't know whether the plan is or not."—*Ink Drops*.

A NEW COMFORT FOR THE SICK.

THE PNEUMATIC-TIRED AMBULANCE AS USED BY NEW YORK HOSPITALS.

TWO rubber-tired ambulances have been in constant use for several weeks past at the New York Hospital—one equipped with pneumatic and the other with solid tires. Ever since rubber tires first promised to come into successful use on vehicles the superintendent of the hospital, Mr. George P. Ludlam, has kept in mind the desirability of such tires for ambulance-wheels.

Last year he had one of those vehicles fitted out with new rims and tires three inches in diameter that have since been in regular service without a puncture or deflation. The weight of the ambulance alone is 1,850 pounds, besides which it usually carries the weight of several persons. It is, therefore, the heaviest pneumatic-tired vehicle in the world. The other ambulance referred to is furnished with solid tires, held in steel clamps, as in the case of carriage wheels in use in New York.

"While I am not yet ready to express an opinion as between the pneumatic and the solid tire," said Superintendent Ludlam to *The India Rubber World*, "I can declare myself decidedly in favor of rubber. The increased comfort to the injured or sick person who has to be carried in an ambulance over our rough streets is often very great. There is an advantage, too, in the case of nervous persons, in the lessened noise due to the use of rubber. Besides, the rumbling of ambulance wheels on the hospital premises has been lessened by the rubber tires, which is a relief to everybody in the institution. There is still another important advantage—with rubber tires the weight of the ambulances can be reduced 400 pounds or more. We have made our ambulances very heavy on purpose to give them stability and to reduce jolting, but as the rubber tires will offset the ill effects of jolting, we can spare a large part of the weight of the vehicles, much to the relief of the horses.

"So far, we have met with drawbacks in the use of both kinds of tires. The pneumatic tires collapsed almost the first time they were put to practical use, though I must say that for several weeks now we have had no repetition of the trouble. The trouble with the solid tires, on the other hand, has been that they are liable at any moment to be pulled from the channel or clamp holding them to the wheel rim. We are obliged to keep in our stable a machine for replacing the rubber—an operation of frequent necessity. But in the case of both styles of tires I feel that the drawbacks can be remedied. Which form we shall adopt in the end it is impossible to say but that we shall continue the use of rubber is certain."

ISAAC B. POTTER.

(Frontispiece.)

GOOD ROADS takes pleasure in presenting this month, as its frontispiece, a portrait of the man who, more than any other, was responsible for its beginning, and who, as managing editor, steered it through its first two years of infancy and childhood.

The chief end of Mr. Potter, as will be seen on referring to his photograph, bears little resemblance to the Sutherland sisters, to whom he is distantly related, but as

"Beauty draws us with a single hair,"

he is still "in the swim" and seems likely to be for some time to come.

We have never been able to ascertain Mr. Potter's exact age, but should guess that he is about forty.

He is old enough to "know a hollyhock from a hoe handle," and young enough to be a most agreeable and entertaining companion.

The name of no man is more widely known in L. A. W. circles than is that of Isaac B. Potter.

He is a hard fighter and when he isn't a winner he is what the sporting fraternity would designate a "good loser."

We recently ran across an old gentleman who had the honor at one time of acting as young Potter's Sunday School teacher. He tells some amusing tales of "little Ike," as he affectionately called him, of which the following is a sample:

Each member of the class was directed to commit to memory two verses of Scripture, and all who could recite them creditably on the following Sunday were to receive souvenir cards. Potter's assignment was the "two first verses" of the third chapter of the gospel according to St. John.

At the appointed time the incipient lawyer rose to his feet and in a very confident manner recited the first verse and sat down. The teacher noted the absence of the second verse, but went on with the exercises and at the close distributed cards to all except the subject of our sketch. Little Isaac B. "arose to a point of order" and demanded to know why he was not to have one of the coveted cards. On being informed that he had carried out but one-half of his part of the contract, he "filed a protest," which, being "overruled," caused him to "appeal from the decision of the chair" on the following technicality:

"Teacher, you said I was to learn the 'two first verses,' and I couldn't see but one first verse and so I learned that."

He got the card.

His earlier education was obtained at Troy, N. Y. He

afterward took a course in civil engineering at Cornell University and followed that profession for several years.

He took up the subject of law in 1880 and the following year added himself to the census of New York in which he has been counted ever since.

He joined the L. A. W. about ten years ago, and was appointed chairman of the Rights and Privileges Committee of the New York Division in 1887 by Chief Consul Bidwell.

At that time the famous "Central Park Case" was before the Court of Appeals.

A great deal of time and money had been spent in an attempt to settle whether or not a bicycle might be ridden over the sacred soil of Central Park. What might have been the result in court is not so clear, but Potter believed it was better to invoke the "power behind the throne" than to monkey too much around the throne itself. Accordingly, he drafted the now immortal "Liberty Bill," packed his grip and went up to Albany and engaged a permanent boarding place, which he occupied until his bill became a law.

The following is a copy of the bill which was passed without amendment:

LAWS OF 1887.

AN ACT in relation to the use of Bicycles and Tricycles. *The People of the State of New York, represented in Senate and Assembly, do enact as follows:*

SECTION 1. Bicycles, tricycles and all other vehicles propelled by manumotive or pedomotive power, are hereby declared to be carriages within the meaning of that term as used in section one of title thirteen of chapter twenty of part one of the Revised Statutes of the State of New York, and all persons by whom bicycles and tricycles and said other vehicles are used, ridden or propelled, upon the public highways of this State, shall be entitled to the same rights and subject to the same restrictions in the use thereof as are prescribed in said Revised Statutes in the cases of persons using carriages drawn by horses.

SEC. 2. The commissioners, trustees or other authorities having charge or control of any public street, public highway, public parkway, driveway or public place in this State, shall have no power or authority to pass, enforce or maintain any ordinance, rule or regulation, by which any person using a bicycle or tricycle, shall be excluded or prohibited from the free use of any public highway, street, avenue, roadway, driveway, parkway or public place, at any time when the same is open to the free use of persons having and using other pleasure carriages.

SEC. 3. Nothing in this act shall be so construed as to prevent the passage, enforcement or maintenance of any regulation, ordinance or rule, regulating the use of bicycles or tricycles in public highways, streets, driveways, parkways and public places in such manner as to limit and determine the proper rate of speed with which such vehicles may be propelled, nor in such manner as to require, direct or prohibit the use of bells, lamps, and other appurtenances, nor to prohibit the use of any vehicle upon that part of the street, highway or parkway, commonly known as the foot-path or sidewalk.

SEC. 4. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

SEC. 5. This act shall take effect immediately.

From this splendid beginning the courts have established beyond question the right of the bicycle to use any road that is open to the horse-drawn vehicle.

In 1888 Mr. Potter began writing for magazines and newspapers on the subject of road improvement; this he has kept up more or less steadily ever since.

In 1891 he published, under the auspices of the L. A. W., a sixty-four page book entitled "The Gospel of Good Roads," which was a most effective "campaign document" and was widely noticed. This "gospel" was virtually the starting of the GOOD ROADS magazine, which was decided upon during the same year, and its first number issued January 1st, 1892, with Mr. Potter as captain, pilot and general deck hand.

That GOOD ROADS has accomplished much, there can be no doubt; that I. B. Potter is mainly responsible for it we most cheerfully admit.

Last summer he started in to collect and publish special information upon the building of different kinds of roads, the intention being to so furnish the subject matter as to help each locality to exactly the sort of information needed.

At the last State election of the New York Division, L. A. W., Mr. Potter was chosen Chief Consul.

We predict for him a successful reign, and sincerely hope that he may live long and be happy.

And when at last "his head is silvered o'er with age," and the calm seclusion of his private chimney corner claims his waking hours; when no more the bugle blast of public duty shall call him from that sacred hearth; when he shall be permitted to come in out of the reign and spend the declining years of his busy life amid the loving kindnesses of his devoted grandchildren.

Then shall it be the pleasant duty of the L. A. W. historian to note upon the variegated page, the cheerful fact that through all the ups and downs, and straits and narrows, and dips and spurs and angles of the League's erratic course, there were staid and earnest men who gave not up to dreary doubt, but hoped and worked toward better ends, and looking ever toward the longed-for day when "everybody's business" should not lag, but would command the heart and soul of faithful workers everywhere.

And when that honored roll is called, and they who wear the veteran's badge stand forth to give account, we look for no alphabetical arrangement, but shall expect to see at least one name which begins with P placed high among the A, B, C's.

"POPULARITY disarms envy in well disposed minds. Those are ever the most ready to do justice to others who feel that the world has done them justice.

When success has not this effect in opening the mind, it is a sign that it has been ill deserved."—*Hazlitt*.

THE FINANCIAL QUESTION.

BY SIMON SCHRIVER.

THE financial question (and the question of good roads) at this juncture are paramount to any other, and suggestions from the people are opportune.

The national debt is in round numbers one thousand millions.

Having spent the equivalent, we concede its validity.

As the government is the people—and as we as individuals help to make up the government—and if the debt is paid, it must be paid by the people—and as the use of the money to the people is worth more than the rate at which it can be provided, I would have the government issue bonds or notes equal in amount and exchange them for its entire demand obligations; followed by a similar exchange for the bonded indebtedness as fast as it becomes due. These bonds or notes should be the size of the usual bill, and without *coupons*. They should run for forty years, and be redeemed at the rate of 1 1-2 per cent. a year. They should bear interest at the rate of one per cent. per annum—the interest to accrue from year to year at that rate, and not compounded. The bonds to pass at their face value only until maturity, when the accrued interest would be added to the face value.

The amount to be redeemed one year from date should be stamped with the figure one and year of their maturity. The amount redeemable in two years should be stamped with the figure two, with the year of their redemption.

The principal and interest to be paid in gold and to be a legal tender for all purposes.

This would entirely relieve the government from embarrassment by liability to meet demand obligations, and make unnecessary the issue of bonds for the protection of its reserve. As a result, the bonds maturing one year from date would be withdrawn from circulation in nine months, as by holding for three months for redemption would bring the holders four per cent. interest—and so on by the further application of this fact. The banks could do business on their capital and deposits, as the entire debt could be turned into currency for circulation. To prevent contraction, the amount redeemed in any one year and destroyed, could be replaced by an equal amount, and made payable the year following the last to be redeemed. The extinction or perpetuity of the debt could be regulated, if desired, by future legislation—by an act that would not conflict with the present enactment.

Under this proposition the interest paid by not compounding

would be but a small part of one per cent. This plan would meet present emergencies.

If in the future it was found by the accrued interest a contraction was produced, that could be provided for when it appeared. The time, forty years, as above, is used merely to illustrate, and could be extended or shortened as best might subserve the plan. The principle would remain the same.

The government's plan seems to be abortive. With a reserve of eighty-six millions, and growing less so soon after selling one hundred millions in bonds, proves how very uncertain the present method is.

While the above plan is simple, it is practicable, and I would like to read the objections that can be made to it by the members of the Baltimore Convention, whose grand effort is to get an immense circulation to their great gain, and which cannot be done with the approval of the people who understand it.

A privileged class in any community is unjust, and if legislated upon the people, will cause rapidly to increase Populistic and Socialistic tendencies.

A democratic republican government with universal suffrage is in danger of subversion unless the rights of the common people are fairly protected.

Money is power—and the strength and cupidity of the capitalist cannot be denied, as shown by former legislation, to bring greenbacks at par in gold, instead of making it the policy of the government to pay a large part of the debt in the way it was created, i. e., when thirty-five dollars in gold would get a bond for one hundred dollars, interest and principal to be paid in gold, which at its premium caused the government to pay forty-three per cent. interest.

The proposition that a bank with a million capital shall receive \$750,000 in currency by depositing with the government thirty per cent. in greenbacks, resulting in a gratuitous circulation of \$525,000, is a policy the cupidity of the banker or other beneficiary would approve, but against which the common people who understand it will demur.

The effect would be that banks would become so numerous by the circulation given them as to be established in hamlets, followed by failures, with a tax upon the solvent to make good the loss. I think the plan of the Baltimore Convention and that of Secretary Carlisle and his substitute, with the recommendations of Chairman Springer, should all be reconsidered and not become a law.

WHEELMEN'S SIDE PATHS.

THERE is, so far as I know, but one Side Path League in the whole United States, but nevertheless, wherever bicycles are used and wherever bad roads are found, and that is pretty much everywhere, there you will find the wheelmen's side paths.

Let us suppose that a club of fifty members is out for a century run. Twenty-five miles from the city they come suddenly upon a piece of particularly bad road. From gutter to gutter the highway is nothing but a bed of sand, but on the right hand side the sand happens to be of less depth than elsewhere. The club at once strings out and the members pass along single file. The result, of course, is that the sand is beaten down or pushed aside by the wide tires, and a narrow path is made by the side of the road where one may walk or ride with some degree of comfort.

But the thing doesn't stop here. The next wheelman who happens that way sees where his fellows have passed and follows in their tracks, as it were. And so it goes on. At the end of a few months, the narrow path by the side of the road has been beaten down until it is as hard and almost as smooth as a pavement. Of course, pedestrians who use the side path which the wheelmen have made, aid in the work to a certain extent, but their aid is of such little consequence that it is hardly worth mentioning.

These side paths are not only sources of great pleasure and comfort to touring wheelmen, but they are silent preachers of the gospel of wide tires. What a pity that so few of our law makers have the sense to profit by their teachings! A bicycle, weighing with its rider usually less than two hundred pounds, is fitted with a tire varying in size from an inch and a half to two inches in diameter. Few light carriages have tires of more than seven-eighths of an inch in width, while even on the heavy work wagons a tire larger than two inches is the exception rather than the rule, and many are fitted with tires even smaller than that. Comparatively speaking, a ten-inch tire would be none too wide for the heavy work teams, but if they will use tires of even half that width we will be satisfied. How much better roads we might have if the teamsters would but learn the lesson taught by the wheelmen's side paths.

HARRY RAMBLER.

A NOVEL METHOD OF ROAD REPAIRING.

MR. JEFF VAN NORT, of Hamilton, Caldwell County, says of the roads in his neighborhood :

“About fifteen years ago we began the improvement of the roads in this township. The farmers turned out in the fall and we all worked nearly two weeks in grading them up and bridging the little brooks and rivulets. We pledged one another to keep them in repair voluntarily. Next spring we made cheap scrapers by inserting a pole into a slab, setting the slab at an angle. From that date to this the farmers along our roads have kept them up by dragging these scrapers over them. When Neighbor Jones, living at the east end of the road, has occasion to go over it, he hitches a scraper behind his wagon and drags it the distance he goes in such a way that it throws the dirt from, say the south side of the road, to the centre, filling up ruts and bumps. Neighbor Smith, going in an opposite direction, comes along with his wagon, picks up the scraper where Jones cast it off and drags it along the north side of the road, throwing the dirt to the centre. The straw, hay and other substances mix with the dirt and are pressed down in the centre, and the sun converts the mass into adobe. We have as good roads as any in the country and they are kept up in this way. No tax, no working the roads—only voluntary labor. Every man is ashamed not to do his part. I do not see why other communities cannot do what we have done.—*St. Paul Pioneer Press.*

GOOD ROADS IS THE ACCEPTED AUTHORITY; ASK FOR IT AND
TAKE NO OTHER.

“**T**HE only medicine for suffering, crime, and all the other woes of mankind is wisdom.

Teach a man to read and write and you have put into his hands the great keys of the wisdom box. But it is quite another matter whether he ever opens the box or not. And he is as likely to poison as to cure himself, if, without guidance, he swallows the first drug that comes to hand.”—*Professor Huxley.*

AN INTERESTING LETTER.

OFFICE OF
CHAPIN & GOULD,
CRESCENT MILLS,
SPRINGFIELD, MASS.

EDITOR GOOD ROADS : Dear Sir — In reply to your questions regarding the use of wide tires on heavy wagons, we would state that we are in general pleased with the results of our experiments.

The State roadway between our mill and Huntington is about 18 feet in width and is a first-class paved (macadamized) road.

This road before the State improved it was a common, gravelled country road, muddy and soft in the spring and fall. We had much trouble in teaming with tires 2 1-2 to 3 inches wide. After some months these 3-inch tires would be crowned, showing that the edges received the most wear, and the road would be badly cut into deep ruts. We successively tried 3 1-2, 4, and 4 1-2 inch tires and noticed marked improvement with each increase of width.

The road now being finished, we shall put 5-inch tires on in the spring and expect to draw heavier loads with greater ease and with a saving of at least one horse.

On hard roads the wide tire acts as a roller and prevents gulying ; on sandy roads the wide tire is a distinct advantage, it gets a better bearing and does not sink so deeply into the sand.

In our opinion the use of wide tires on heavy wagons will become general when the beneficial results are better known. The cost of repairing the roads will be materially lessened, the wear and tear of stock will be reduced, greater loads can be carried at the same expense, time will be saved, and lastly, wheelmen will appreciate the advantages in the improved condition of the roads.

Yours truly,

CHAPIN & GOULD.

Springfield, Mass., Dec. 19, 1894.

“The wisest man is generally he who thinks himself the least so.”

FORCING THE WIDE TIRE.

THE friends of good roads go too far in their efforts to improve the highways. They say to the owner of vehicles: "You must use a wide tire, whether you wish it or not." And by entailing the expense of making the change from a narrow to a wide tire, they antagonize an element that should be working in accord with the road maker, namely: the farming community. It is all very nice for a man who has been used to paved streets to insist upon the farmer keeping the highways in good order; it costs him nothing, but it does cost the farmer something, and until the latter has learned the advantages of good roads, it is judicious to avoid unnecessary legislation. It is claimed that "if any owner has a right to control the property owned, then the government of a certain area, as, for instance, a State has a right to say what use shall be made of the roads which it must maintain." This sounds well, and would be logical if the State owned the roads, which it does not, except as trustee. The deed of every farmer calls for a specific number of acres, the road line of which extends to the middle of the highway. In the State of New York the general law makes the minimum for the road three rods wide, but local commissions may make them four rods wide on petition of a majority of those whose lands front on the highway to be widened. And in the same way wide roads may be reduced to the minimum width; and in many parts of the State there are cross roads where those running in one direction are wide and others narrow. The farmer may plant fruit trees along the highway in front of his farm, providing he does not interfere with the three-rod limit, and can arrest for theft any person who picks the fruit. The farmer is in fact the owner of the land, but the law requires that he shall give up a portion for a highway for general use, and it is doubtful if he can be punished for using a vehicle upon that part of his farm more than on any other. Let us encourage good road building, but not by oppressive laws which are of doubtful legality.—*The Hub*.

In its criticism *The Hub* quotes from GOOD ROADS and assumes that the State doesn't own the highways, and hence cannot dictate to the farmer who practically *does* own them.

We appreciate that part of the *Hub's* argument which says that the farmer should not be *forced* to use wide tires. We also think he should not, except as we believe his self interest will force him eventually to use them.

Encouragement in the way of properly adjusting the tax on wagons in proportion to the width of tires, with possibly some restrictions as to the manufacture of new wagons, is all that GOOD ROADS believes necessary to settle the narrow tire question.

HON. THOMAS B. REED, ex-speaker of the House of Representatives, in an address to the graduating class of the Peirce College of Business, in the Academy of Music, Philadelphia, December 21st, speaking of the various forms of wealth and the comforts and benefits arising from and made possible thereby, made the following significant allusion to the country road as an asset of the nations, and as a factor in contributing to the wants and necessities of the human race:

"One of the greatest civilizers of the world is something we hardly think of, either as a civilizer or as wealth—the common country road. Few people ever think how much roads cost us. They represent the surplus labor of centuries. They make possible the transfer of the abundance of one region to supplement the want of another. And yet, the modern road, crossing the country in all directions, traversible by carriages and carts, as well as beasts, does not go back to the times of good Queen Bess. Indeed, in her reign thousands might starve, and did starve in one county, while abundance filled the granaries of the others.

"Think of men and women and children starving from mere lack of that form of wealth which we call roads in the days when Drake and the great captains were scouring the seas in search of the Spanish galleons and Spanish gold, and when the military might of England hurled back the Spanish Armada and all the power of the greatest nation on the face of the globe. In the very heart of London, in the street named after the King himself, the only way one of the Edwards could get to his Parliament was to fill with great bunches of fagots the holes in the street."

IN the discussion on "Broad Tires on Loaded Vehicles," at the State Board of Trade meeting at Norwich on Wednesday. Mr. Cheney, of Manchester, said the concern with which he was connected had purchased, some years ago, wagons with tires six inches wide. His neighbors had followed his example, and a great improvement had been noted. In making the roads in Manchester, the teamsters were instructed not to track each other, but to overlap wagon tracks. This had resulted, with the use of broad tires, in such a thorough rolling of the roads in Manchester that a roller was not necessary. In East Hartford the roads are being rapidly spoiled by narrow tires upon coal wagons. The resolution of the Norwich Board of Trade, regarding petitioning the Legislature to pass a law restricting the use of narrow tires on wheels carrying heavy loads was referred to the committee on highways.—*Conn. Exchange.*

THIS month is famous for several things, but in L. A. W. circles it is most thought of as the time when the League comes face to face with its annual crisis.

When the expectant candidate greets the rural proxy holder with a smile, and then another and another.

When the "cut and dried" sometimes fails to pan out, and the unexpected is liable to happen.

When the usual courtesies are extended from several directions, and the guests vote on who shall act as the summer host.

The new men are congratulated.

Those who go out congratulate themselves, and we disperse and settle down again to a year of (let us hope) peace and prosperity.

Day of Year.	Day of Month.	Day of Week.	Length of Day. H. M.	SECOND ▲ February, 1895 ▲ MONTH
32	1	Fr.	10 00	Soon comes again the riding season.
33	2	Sa.	10 03	Unless you are deprived by sickness,
34	3	S.	10 05	Business or death, you will enjoy the
35	4	M.	10 08	Sunshine and pleasant weather.
36	5	Tu.	10 11	Constant outdoor exercise
37	6	W.	10 13	Reduces the desire to find fault,
38	7	Th.	10 15	Induces restful sleep and
39	8	Fr.	10 18	Benefits the rider who improves
40	9	Sa.	10 21	Every opportunity to get out of doors.
41	10	S.	10 23	Read GOOD ROADS magazine,
42	11	M.	10 26	For the benefit of all who drive
43	12	Tu.	10 28	Or ride, it is important to have
44	13	W.	10 31	Roads which are passable.
45	14	Th.	10 33	and keep up with the
46	15	Fr.	10 36	Generally speaking the roads
47	16	Sa.	10 39	Of this country are improving,
48	17	S.	10 41	Older nations will not always
49	18	M.	10 44	Deserve the credit of supremacy.
50	19	Tu.	10 47	procession. Your dollar
51	20	W.	10 50	Regularly organized road agitation
52	21	Th.	10 52	Of the most earnest kind,
53	22	Fr.	10 55	And of the sort that counts,
54	23	Sa.	10 58	Demands public attention and
55	24	S.	11 01	Secures prompt action in most cases.
56	25	M.	11 03	is just as good as any other dollar,
57	26	Tu.	11 06	and it will help the ghost to walk
58	27	W.	11 09	just so much farther. "There is
59	28	Th.	11 12	no time like the present."

LEAGUE OF AMERICAN WHEELMEN.

..... Organized 1880.

A voluntary organization having for its object the systematic improvement of the public roads, and the protection of wheelmen against unjust legislation. The present officers of the League are as follows :

President.—CHAS. H. LUSCOMB, 280 Broadway, New York.

First Vice-President.—A. C. WILLISON, 47 Baltimore Street, Cumberland, Md.

Second Vice-President.—GEO. A. PERKINS, 15 Court Square, Boston, Mass.

Secretary.—ABBOT BASSETT, 46 Van Buren Street, Chicago.

Treasurer.—W. M. BREWSTER, 411 Francis Street, St. Joseph, Mo.

GOOD ROADS MAGAZINE.

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Devoted to Highway Improvement.

STERLING ELLIOTT, *Managing Editor.*

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Please send Good Roads for _____ year _____

To _____

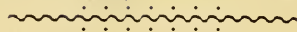
Street _____

Town _____

Amt. enclosed _____ County _____

Beginning with _____ State _____

Opening of a Chestnut Burr.



"Why does a bicycle stand up?" is a question which has been quite thoroughly discussed by the scientific press.

What the average beginner most wants to know is, why a bicycle *doesn't* stand up.

CERTAINLY NOT.

Suppose a neighbor should desire
To light a candle at your fire,
Would it deprive your flame of light
Because another profit by't?

— ROBERT LLOYD.

GOOD ROADS IS ATTAINABLE,
DIGESTIBLE, FASHIONABLE,
ONLY \$1.00 PER YEAR.

Little Clarence — Pa!

Mr. Callipers — That will do, my son, I do not know how much of a snake is body and how much tail, nor why Wednesday does not come on Saturday, nor anything of the kind. You will save us both considerable trouble if you go to bed right away.

Clarence — I wasn't going to ask any questions, pa. I was only wondering why almost everything worth having in this world is either unattainable, indigestible, unfashionable, or too expensive? —
Western Rural.

Whene'er I take my walks abroad,
How many poor I see!
And as I do not speak to them
They do not speak to me.

— JACK SEWARD.

THE GOOD ONES DON'T NEED
SAVING.

"My task in life," said the pastor, complacently, "consists in saving young men."
"Ah!" replied the maiden, "save a good one for me." —
Life.

GOOD ROADS HAS CASH IN
ADVANCE.

How dear to our heart is
Cash on subscription,
When the generous subscriber
Presents it to view;
But the man who don't pay —
We refrain from description;
For, perhaps, gentle reader,
That man might be you.

— *Exchange.*

POSITIVE EVIDENCE.

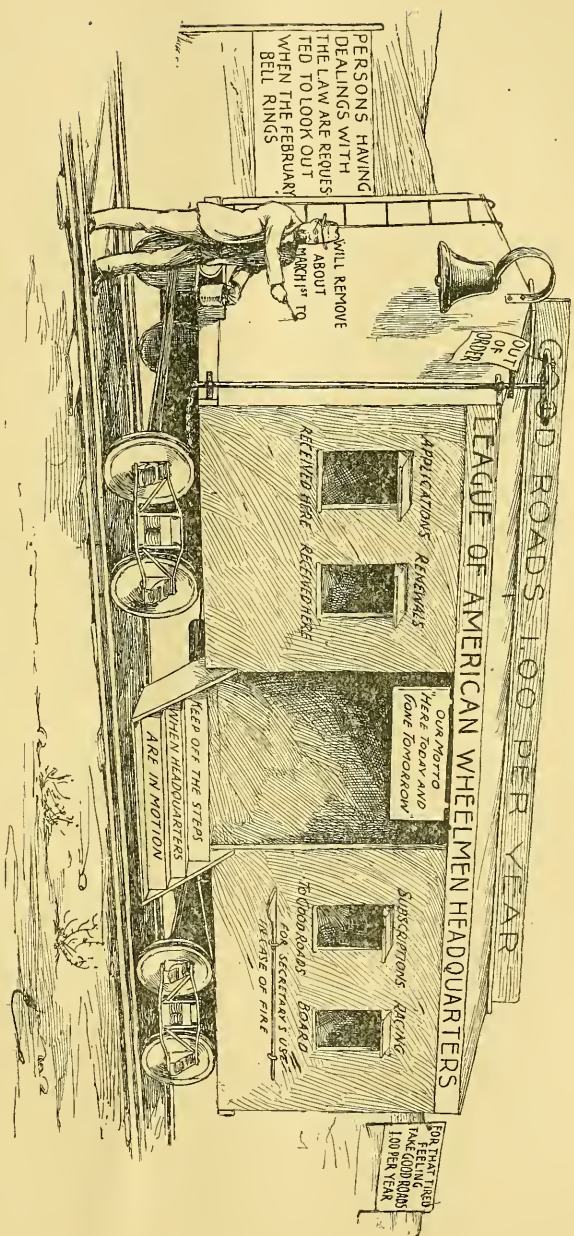
"Johnny," said the minister, "I hope your father lives in the fear of the Lord."

"I guess he does, sir. He never goes out on Sunday without he takes his gun."

THE OLD BARBER SHOP STORY
IN A NEW DRESS.

"I like this hat," said Isabel.
"It makes my face look long and well.
But when dear father saw the bill
It made his face look longer still.

— *Judge.*



The Secretary indulges his well known propensity for "word painting."

A SUGGESTION.



"I believe in educating the masses on the subject of roads, and I fully recognize the good work done by the League of American Wheelmen."

Geo. H. Peck

Ex-Governor of Wisconsin.

GOOD ROADS.

Vol. 7.

March, 1895.

No. 3.

GOOD ROADS AS A WEEKLY.

AT the February meeting of the National Assembly of the League of American Wheelmen, it was voted to consolidate this magazine with the weekly paper heretofore published by the League, and to issue both under one cover, the new publication to be known as "THE L. A. W. BULLETIN AND GOOD ROADS." To this end a contract has been made for a term of years which provides for the publishment of the new paper.

The office will be in the same building as that now occupied by GOOD ROADS, No. 12 Pearl street, Boston, Mass. The first number will issue April 4th.

All unexpired subscriptions now on the GOOD ROADS books will be filled by the consolidated weekly.

In making this departure the League has placed itself in a position to more extensively pursue its GOOD ROADS work, and at the same time greatly increase its membership.

The L. A. W. BULLETIN AND GOOD ROADS will be devoted to the general interests of road improvement and the "art and pastime of cycling."

A sincere effort will be made to have its columns readable, and of a character which will find general favor with wheelmen and road reformers.

Readable articles on the subject of roads, also interesting photographs showing novel views of particularly good or particularly bad roads, may be sent as heretofore to No. 12 Pearl street, and if acceptable will be used in the new paper.

Owing to the proposed division of the GOOD ROADS' matter into smaller and more frequent instalments, it would seem desirable that preference be given to brief articles, interesting paragraphs and items of road news.

"Boil it down"; don't fail to send us the article; don't fail to include in it all the "points," but do all you can to take out the chaff, the wheat will look so much the better.

The printing and control of advertising space in the present GOOD ROADS was in the hands of the Wheelman Company of this city; they held a three years' contract, which was made with the League about a year ago.

We desire to express both officially and personally our appreciation of the considerate treatment received at the hands of the Wheelman Company.

During the past year they have furnished us, without charge, about fourteen thousand copies of GOOD ROADS in excess of the number contracted for, and now when it was desirable that the L. A. W. should publish GOOD ROADS in another form, the Wheelman Company waives its claim on the remaining two years of the contract and permits us without embarrassment to carry out our new plans.

We have on hand a few copies of each and every number of GOOD ROADS from its beginning (January, 1892). We also keep on hand bound volumes which may be had as heretofore at \$1.00 each.

All mail relating to GOOD ROADS' matters should be addressed as formerly to No. 12 Pearl street, Boston.

This issue is unavoidably late. We hope subscribers will be forgiving, and that when they receive the GOOD ROADS matter in its new form the change may be acceptable. We shall try hard to make it right.

With this number we say good bye to you as a monthly and will ask you to shake hands with us again on April 4th, and once a week thereafter.

A GOOD ROADS' DAY.

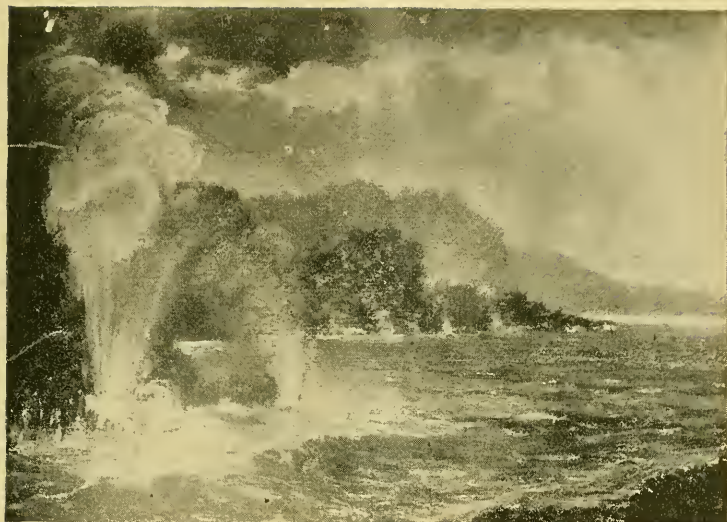
AT each future meeting of the National Assembly of the League of American Wheelmen, it is decided to devote one day to the discussion of the subject of road improvement.

The first day of the meeting is set apart for this purpose and we have reason to hope for good results from that first day's work.

Men of prominence outside the League will be invited to be present, particularly those who are interested in the cause of road improvement.

Papers will be read by men who make roads a study; delegates will be expected to report progress on the road work in their respective States, and all matters referring to the subject of legislation, agitation and practical work will be thoroughly discussed.

Great results are to be expected from the "good roads' day."



WITHIN THE CRATER.

A TRIP TO KILAUEA,
THE LARGEST ACTIVE VOLCANO IN THE WORLD.

BY MRS. J. H. EMERY.

ONE bright day in May, 1893, found our party snugly ensconced on board the little steamer Kenau, which was waiting in the Harbor of Honolulu for its full complement of passengers.

At last we were off, steaming through the intricate passages that connect the islands with each other. As we left the harbor we looked back upon a scene of exquisite beauty. Like a dark green emerald in an opaline setting, Oahu arose from the sea, whose many tinted waters of green and blue deepened into violet, through which the foam-crested billows rolled and harmlessly broke upon the protecting coral reef that formed the Harbor of Honolulu. Within the harbor dark-hued natives stood waist deep in the water, drawing in their nets, or in long, narrow boats shooting through the breakers beyond the reef to engage in deep sea fishing; bathers in bright costumes revelled in the limpid waters or basked in the sun upon the golden sands of Waikiki. Far off in the distance white sailed schooners swayed, while high mountains, half

obscured by low hanging clouds, formed a dark background to the sleepy city of Honolulu lying at their immediate base, almost obscured by dense groves of banyan, algeroba, mango, cocoanut and feathery palms, with their rich foliage brightened by brilliant flowering shrubs and vines.

Gradually the picture faded and was replaced by the lofty heights of Moliki, towering thousands of feet, their precipitous sides forming the wall that separates the doomed leper from all he holds most dear.

On we went through the short chopped seas of the channels, past the island of Maui, until Hawaii, the largest island of the Sandwich group, appeared; its dreary, verdureless sides presenting a scene of desolation only to be found in a volcanic country.

Morning found us still in sight of land. Occasionally a great whale or school of porpoises would show themselves, or a flying fish would dart like a silver arrow through the air.

At last the island was rounded, and the arid waste was changed to a perfect dream of beauty: high mountains clothed from base to summit with tropical verdure rose from the ocean into cloud land; waterfalls springing almost from their very tops vaulted hundreds of feet downwards to join the sea; eighteen such cataracts appeared at once; the mountains were deeply cleft by wooded canons into which the vaporous clouds floated and filled, until they foamed over the mountain sides in soft, nebulous mist. Sometimes the cloud curtain would fall and obscure the whole, then rising be held back by a rainbow span.

Darkness, which falls abruptly so near the equator, shut the scene away from our regretful eyes, and we retired to wake at two in the morning in the Harbor of Hi lo.

There are but three good harbors off the islands, while many of the landings are very dangerous on account of high surf. Small boats came out to land us. It is not pleasant to climb from a lurching steamer into a rocking skiff. Two strong natives grasp one's hands, the ship rolls, the waves heave. "Now!" shouts the boatman, and one is swung into the boat, thankful that it is not the sea instead, which looks dark and angry in the dim starlight, while visions of sharks, with which the warm waters of the Pacific abound, fill the mind.

Arriving at the hotel, we found our number augmented by an English doctor and wife, an Oregon reporter and the inevitable bride and groom, all bound for Kilauea. Entering stages we found that the road, level at first and leading through wide stretches of sugar cane, gradually became wilder and more mountainous, until leaving pineapple, banana and coffee plantations, we were in the midst of the forest primeval, where the "ohio lehua" mingles its flaming pendants with the wide



HARBOR OF HONOLULU.

white bells of the "fleur de bunda." Palms and tree-ferns towered from 40 to 70 feet above the tangle of lesser ferns, wild fruits and flowers, forming a perfect labyrinth of tropical vegetation which crowded to the very edge, as if jealous of man's invasion into nature's wilds.

And oh! how it rained! The windows of heaven were opened and we were soon drenched, with still ten miles to go on horseback after leaving the carriage. The end of the wagon road was reached at last. A group of forlorn looking guides, with forlorn horses bearing wet saddles, awaited our coming. Climbing out we discovered one dilapidated old side saddle to five women, it being the custom for Hawaiian women to ride astride. What was to be done? We ladies discussed the question and submitted to the inevitable with the best grace possible, all but one, who declared she would not ride upon a man's saddle, and was helped on to the side saddle. We drew our waterproofs over our ankles as best we could, and journeyed on over a stone road that was in process of construction by convict labor. We were obliged to exercise due care not to step off from the crushed rock forming the road bed into the deep mud that had replaced the verdure, so we were compelled to ride single file.

Suddenly the procession came to a halt. "What's the matter?" Only the pack mule rolling in the mud with our valises.

A second halt. "What now?" The lady on the side saddle had fallen from her horse; fortunately, owing to the soft mud, her injuries were slight. A change of saddles was effected and the cavalcade moved on.

The rain fell in sheets, it trickled down our necks and into our ears, and filled our mouths if we attempted to speak. At length Fern Trail was reached. What magic in that name to conjure up romantic thoughts of those isles where the mango apples grow, where the red "Ee" and the yellow "Oo" flit, sucking sweets from honey laden flowers. Oh! the awful reality of a broken corduroy road, formed from trunks of the spongy tree-fern half fallen into decay, with bottomless mud on either side. We weary females, satiated with ferns, limply held on to the saddle horn, while a convict in parti-colored garb of blue and brown, detailed from the chain gang, each led a horse to keep it from stumbling and breaking our necks. Gradually, as we ascended, the road became rocky and firm. The rain had ceased, or rather we had climbed above the region of perpetual showers. Within a mile of our destination we were met by a carriage. The air at this altitude was clear and delightful, and double pink roses lined the road. The Volcano House smiled from its setting of heliotrope and callas, luxuriantly blooming in spite of close proximity to sulphur banks from which clouds of hot vapor were thrown into the air.

After a late dinner, dried and rested, we again mounted our horses to make the descent into the crater, which yawned, a mighty abyss, at our very feet. We were now four thousand feet up the Mauna Loa mountain. Into the mountain's side the crater drops 750 feet, as if seeking to hide in the very centre of the earth. The crater is seven and a half miles in circumference, with an extreme width of about two miles. A road has been made across the cold lava to within a little more than a quarter of a mile of the open lake of fire. This road gives a sense of security, for although the whole crater's bed may be overflowed with molten lava, or even drop away without warning, while at each hard earthquake great crevices often open, its action seeming to be governed by no fixed laws, it is still considered safe for tourists to venture in.

Down the precipitous zigzag path we climbed, single file, into the gathering darkness. Guides, carrying poles and lanterns, walked between every two or three of the party; occasionally one would call out, "Keep single file; some one will be hurt." At last we had traversed the crater's bed as far as the horses were permitted to go. The lava over which we passed lay in corrugated waves or billows as black as obsidian, or was broken into cave-like masses by monster upheavals; from the hollow domes of these caverns lung long drops of lava. Here and there the jetty blackness of the formation was



A VOLCANO ROAD.

relieved by high lights of Indian red, purplish gray and white, with dashes of yellow, the latter from sulphur incrustations; everything remaining just as it had cooled from the last eruption.

Walking a short distance, we came to the grass hut situated on the brink of a second drop in the crater. Only a few years since, the whole bed of the crater was on a level, clear up to the fiery lake, but one night, after a party of tourists had returned from the volcano, the whole mountain was shaken by a terrible earthquake and part of the bed broke away and sunk to the depth of nine hundred feet, literally swallowed by the volcano. It has now risen to within three hundred feet of the original level.

Carefully climbing down over the broken lava blocks that threatened to fall at a careless step, starting at every hot blast that came from the wide crevices that led to the nether world, we reached the second level of the crater's bed. This must be traversed before arriving at the molten sea, which looked to our excited imaginations like the infernal regions themselves.

No description of an orthodox Hades with its fire and brimstone could half equal this sight. Every moment the heat grew more and more intense. Three days previously there had been a lava flow, and the intervening space was now cracked and checked like the ice of a river when it is breaking up in the spring time. Hot poisonous gases puffed up from the

crevices, the thin lava from the fresh overflow broke and crumbled like bubbles under our feet, and our fears were not allayed by being informed that sometimes the lava blocks, bordered with red heat, were seen to careen and disappear. We could smell our shoe sole's scorching as we walked.

The guides would try the strength and thickness of the lava with their poles, and caution us to step lightly upon the thin brittle surface.

At length we were on the brink of the lake of fire, and lying before us and some twenty feet beneath us were Nature's most stupendous smelting works, in whose innermost depths all the crude elements of which the earth was formed are crushed and ground, and melted, and then vomited out to form new islands, which in their turn may be re-ingulfed and disappear, destroyed by the fiery force that is ever up-building and again tearing down.

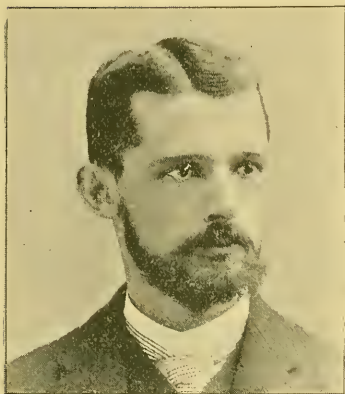
Above the molten sea hung a luminous pillar of cloud, throwing a rosy glow of reflected light over the whole island. Ten thousand feet above loomed Mauna Loa and Mauna Kea, while away in the distance the ever restless sea thundered against the coral reef. To the left arose dense volumes of sulphurous gases, entirely obscuring the view from that quarter and rendering dangerous a near approach — and all the time the molten sea surged and swayed, and surged and broke into sullen waves that, gathering force, dashed in fiery billows against the lava shore, or sprang high in torrents of brilliant spray. Here and there a geyser of molten fluid would shoot upward twenty feet or more, backward falling in red hot drops. Sometimes ten or fifteen such fountains could be seen at once. Then, as if resting, the whole lake would grow still and gray, only to lash itself to renewed fury, opening a hundred vents at once that tore themselves asunder, madly engulfing each other, until the whole sea again became an angry, surging, brilliant molten mass.

I was never so awfully frightened, in the true sense of the word, in my life. Neither a Dante nor a Dore could even faintly portray this fire incarnate, this force unknowable; yet, even in my terror, through the muffled roar of the fiery surf that surged and beat upon the shore, I seemed to hear a voice saying, "Be still and know that I am God," and I no longer wondered that the Hawaiians believed the volcano to be the abode of their Goddess Pele, nor that they reverently made their pilgrimages to worship at her shrine.

THE ROAD QUESTION IN OHIO.

BY ⁷₁₀ DAVID S. OLIVER,

Secretary of the Ohio State Road Commission.



DAVID S. OLIVER.

AN agitation for good roads has been prevailing in the State of Ohio, as well as in other parts of our country. As the result of a recommendation made by Governor McKinley in a message to the Legislature, a joint resolution was passed by the Senate and House of Representatives on February 28, 1893. By this resolution the Governor was authorized to appoint a commission consisting of four suitable citizens, two from each of the principal political parties. The members selected to serve on the com-

mission were Honorable Martin Dodge, of the city of Cleveland, a lawyer by profession, and, at the time, a member of the Legislature; James R. Dunlap, of Hardin County, and D. W. Sprague, of Geauga County, both farmers by occupation, and the writer, an attorney-at-law in Cincinnati, who was chosen as the representative of the League of American Wheelmen.

Soon after its appointment the commission met at Columbus, the capital of the State, and organized by selecting Hon. Martin Dodge as president, and the writer as secretary. The sum of \$800 was appropriated by the Legislature to pay the expenses of the commission. The most essential work at the time was thought to be the gathering of information in regard to our country roads. For this purpose, a series of questions were printed and sent to the County Commissioners of each county in the State. The questions referred to were as follows:

1. Which kind of roads are most common in your county, macadam, dirt or gravel?
2. What materials for making good roads are found in your neighborhood?
3. What is the cost per mile for constructing a pike in your county?
4. What is the number of miles of macadamized roads in your county?
5. What is the amount of money raised per year by taxa-

tion, or in other ways, for the improvement and preservation of roads in your county?

6. Is there any general interest taken by the people of your county in the subject of good roads?

7. What changes would you suggest in the laws of Ohio as tending to improve the condition of the public highways?

8. Is there any feasible method by which convict labor could be used for the improvement of public highways?

9. Please give a list of names of persons in your county who are interested in the subject of good roads, with whom the Ohio Road Commission might profitably enter into correspondence.

10. What is the average cost per ton per mile for moving freight over your roads with horses? Including dirt, gravel, stone and macadam roads.

11. Has the construction of pike roads in your county increased the value of adjoining farms? If so, how much per acre?

The commission also entered into correspondence with engineers and other persons supposed to be possessed of special knowledge on the subject of good roads. It also visited various portions of the State, inspecting roads and road material, and striving by personal interviews to elicit the opinions of farmers and others having a direct interest in the subject. There was a huge mass of correspondence which it became my duty to read and systematize for the report afterwards prepared and printed by the commission. In an article of the length desired by your magazine I can only refer to a few of the results of our labor.

The problem with which we were brought face to face at the outset of our labors was this: If good roads are desirable, why are they not built? Men in this age of the world are usually alive to their financial interests, and, ordinarily, do not need to be urged to enter upon a course of conduct that promises to be to their material advantage. From the statistics we gathered we were able to answer this question, at least in part. We found that there were about 80,000 miles of country highways in our State. We further ascertained that the cost of constructing a good macadam pike of ordinary width and depth varied from \$3000 to \$9000 per mile. Taking the average cost per mile as low as \$5000, it would cost the sum of \$400,000,000 to improve all the roads in the State. These figures were of such alarming proportions as to make us doubt whether the highways of Ohio would be brought to a great degree of excellence within a very short time. This naturally led to the discussion as to which political unit should undertake this work: the Nation, the State, the County, the Township, or the cities and villages.

The idea that the United States should in any manner contribute towards the building of roads in Ohio was at once dismissed from our minds. We were unanimously of the opinion that such work formed no part of the functions of the general government. We were also clearly of the opinion that the State should not undertake to improve the highways, and that it should not contribute any part of the cost of such improvement. Any money raised by the State, by taxation at large, would be simply taking money from one community to spend it for the advantage of another, and unless this was kept up until every part of the State had received its due proportion, the parts slighted would have been treated unjustly. Even if the State should continue road building until all the different parts had been provided with good roads, the net result would have been that each community ultimately would have paid for its own roads, through the circuitous method of State intervention.

Another element of injustice which would be brought about by State action was presented for our consideration. In some parts of the State of Ohio the counties and townships, at their own expense, have built as fine roads as there are in any State in the Union. They have voluntarily taxed themselves in the past and have excellent highways. To compel them to submit to a second imposition of taxes, the money raised thereby being spent on other parts of the State, was, in our estimation, manifestly unjust. It simply amounted to punishing them for their enterprise, and rewarding those communities who, through indifference, had neglected to provide themselves with good roads.

We found that the materials for making good roads were very unequally distributed over the State, in some places being abundant and in others absolutely lacking. In the latter case, the cost of transporting the material would be so enormous as to render the idea not feasible.

We then considered the subject from another point of view. We found that for a great many years the tendency of the population in our State had been to collect in the larger villages and cities. These larger villages and cities, in every instance, had railroad communication with the outside world. It was therefore evident to our minds that there was no necessity for building highways running from one part of the State to another to accommodate through traffic. Our inquiries led us to believe that the average haul on a wagon road did not exceed ten miles in length. The principal benefit of highways is to enable farmers to reach the nearest town or railway station. The logical conclusion, therefore, was that the improvement of the highways should begin at the cities and villages, and branch out into the surrounding country. This process of reasoning led us to assert that the county authorities were the proper ones

to look after the improvement of the country roads, and that the cost of constructing and maintaining highways should be borne by those living on or near them.

On the question of additional legislation, we adopted a very conservative course. We found that under existing legislation good roads had been built, and were being built, and that the obstacle to the further improvement of our highways was not due to any lack of statutes. On this account we declined to recommend any laws for enactment by the Legislature.

The only distinctively novel view advanced by our commission was in regard to the part that electric railways seem destined to play in the future discussion of highway improvement. At the time our commission was sitting, many charters had been obtained to construct electric lines between cities and villages more or less remote. It was pointed out that these lines could be carriers of freight as well as of passengers, and it seemed extremely probable that future development along this line would still further abridge the necessity for building expensive country roads. The cost of carriage over a pike or a dirt road by horse power is enormous as compared with the cost over a railway, either steam or electric. The locomotive has rendered obsolete the use of horses and wagons for long hauls, and it seems likely that the extensive building of electric railways may do away with their use for short hauls. Standing as we do upon the confines of the development of this new agent in transportation, it seemed the part of wisdom to discourage a large expenditure of money in building pikes that in a few years might be superseded.

The question of electric railways caused a division among the members of the commission. Mr. Dodge and Mr. Sprague made a minority report in which they recommended the construction of electric railways by the public authorities through taxation. Mr. Dunlap and I were unwilling to accede to such a socialistic proposal. We were all unanimous, however, in the opinion that the development of the electric railway, whether built by private or public means, would have a tendency to reduce the necessity for ordinary highways, and that it would be folly to expend large sums of money in procuring a means of transportation that might soon be out of date.

Upon one other point we were also unanimous, and that was that the issuing of bonds, extending over a long period of time, to raise funds for building roads, was a course not meriting approval. The increase of the local indebtedness of our counties, cities and townships has already gone far enough, and should be opposed rather than encouraged. We also were hostile to any scheme by which the number of public officials would be increased. We saw no good to be accomplished by a permanent commission, nor by the State having a department

or bureau to furnish information in regard to road building, or the location of road materials. Competent engineers now know how to build good roads, and no State official could add to their knowledge on this subject. This knowledge, moreover, has already been published in books and treatises on the subject, and it would do no good for the State to be at the expense of republishing it.

In conclusion, I would state that my labors on the commission brought me to the conclusion that there is a great deal of misdirected energy in regard to the improvement of our country roads. The principal point aimed at by most agitators seems to be the passage of additional legislation. A new law by a State is hailed as an evidence of progress in the effort to obtain good roads. This, to me, seems a mistake. There is no reason why the State of Ohio should have any additional road legislation. So far as my observation has gone, additional legislation in road matters always takes the form of trying to make some other person pay for some benefit to yourself. What is needed, in my judgment, is a more thorough agitation of the advantages to be derived from good roads among the different classes in the community. The example of my own city of Cincinnati may be cited in proof of this. Several years ago a wide spread public interest was aroused in the improvement of our streets. Cobble stones were the principal material in use at that time, but a demand arose for the use of granite blocks, asphalt, bricks and other modern material. As a consequence, we now have as fine streets in Cincinnati as any city in the Union. We have miles upon miles of granite and asphalt streets, and we are now paving even our alleys with brick. I am, therefore, led to believe that whenever in any community, you arouse a wide spread desire for improved highways, there will be little difficulty in procuring whatever legislation is necessary. On the other hand, I am equally clear that you may legislate until doomsday and, with no general sentiment in its favor, the improvement of highways will never take place.

YES, OR AGAINST LIGHTNING

ROD AGENTS.

THE Good Roads League might show its devotion to the farmers by starting a campaign of extermination against the Russian thistle.—*Milwaukee Sentinel*.

ILLINOIS COUNTRY ROADS.

BY A. G. WOODBURY, OF DANVILLE.

(Chairman Road Improvement Committee.)

THIS article is prepared and the information it contains was gathered with the sincere desire of presenting facts about the roads of Illinois. The intelligent cyclist is as anxious to get at anything that will shed light on this matter as the farmer, banker or any progressive citizen of our grand State.

While he is openly an advocate of "better roads," as it is for his self interest to be, he only wishes them built as safety and good judgment will advise.

So far in this movement the person most interested—the farmer—seems to be in doubt as to the arranging of any feasible plans whereby hard roads can be constructed and not tax him beyond endurance. The aim in this paper is to call attention to certain things that do exist and thereby make it plain that more miles and better miles should be built with the money expended.

Also, that we can safely spend more money on the roads, as while in the aggregate we do put out an enormous sum, the amount per capita is much smaller than almost any one would imagine. The Illinois Division of wheelmen has, along with the other users of the roads, been appalled at the vastness of this road subject.

It did not occur to them until this season just past that the roads were to be treated as a disease; and, whereas, to cure any disease it is first in order to diagnose it, it was proposed by our Chief Consul, A. A. Billingsley, of Springfield, that we obtain the following facts as far as possible:

"The number of miles and kinds of hard roads in each county.

The cost of building and maintaining same.

The cost of material at most available points in each county.

The comparative cost of land per acre on hard roads and on dirt roads.

The road and bridge tax for each year of the past ten years.

The load hauled by a team when road is good.

The load hauled by a team when road is bad."

With these questions answered, and placed alongside of the population, wealth and acreage of each county, the disease is fully outlined, and instead of theorizing as to if this was thus and that was thus, figures are made from facts.

Blanks were prepared and sent to each county in Illinois.

The answers always were by residents of the county, the name and address being on each blank.

The first question, calling for number of miles of each kind of hard road built in 1893, shows the present status of the movement.

Next, kind of road was asked for. Gravel and macadam being all that were reported in any quantity, others were dropped.

Then, actual cost per mile.

Following, comes the maintenance.

This column was rarely filled.

Then comes the eye-opener: Road and bridge tax for the past ten years. This does not include district tax. As reported by some counties, this would add 20 to 60 per cent. to these figures.

What is the value of land per acre on hard roads as compared with similar land on dirt roads in the same locality, causes a great range of answers, \$10 being the average extra per acre. Cost of material shows a wide variance.

Gravel in many counties is 5 cents per yard. It reaches the extreme in Randolph County, \$1.40 per yard.

Crushed rock at Joliet is 60 cents a yard, and ranges upwards.

The load a team can haul when roads are good is never less than 2000 pounds in any county, running up to 7000 pounds in Du Page County where there are 35 miles of gravel road. Eighteen counties report empty wagon a big load when roads are bad. Peoria County, with 140 miles of gravel road, can haul 2000 pounds, when road is bad and 5000 pounds when it is good.

Edgar County, with 132 miles of hard roads, hauls 2000 to 4000 pounds, when roads are good, and 1000 to 2000 pounds when bad. Knox, Champaign and Edwards 3000 pounds when road is good, in counties all dirt roads, can only haul the empty wagon when roads are bad.

The additions to the statements in the blanks were compiled from statistics; the population of each county from the census of 1890, that interesting comparison be made as to tax per each inhabitant. To make it further profitable, the acreage and wealth of each county is shown, that other valuable comments can be formed.

These latter figures are taken from the report of the Board of Equalization of 1891, the year following the census, that the figures may harmonize. The combinations that may be derived from this putting together of these sums would cover more pages than this article.

Of the 102 counties in the State, information was received from 75. From the remaining 27 counties, we are as yet unable

to get our blanks filled. With this paper is a list of those counties and a blank for each county. We would feel greatly favored if some party now present from each county would volunteer to get us what answers they can.

Taking five miles of hard road as a minimum, there are 30 counties having that number or more miles; 45 counties report not a mile of hard roads. Of the 27 counties not heard from, Cook is the only large one not included, and 17 of the remainder have 20,000 or less population, leaving only 9 of the medium-size counties out of the list.

As the counties not reporting, apart from Cook County, have only 521,538 population, out of a State population of 2,634,434, the tabulation represents 80 per cent. of the country road population of the State.

The 30 hard road counties show 898 miles of gravel, and 97 miles of macadam and telford. Total, 995 miles. Now the road and bridge tax for ten years in those counties is \$9,934,346, or, roughly estimating, there is one mile of hard road to show for every \$10,000 expended. It would be safe to say that one-third of the highways reported are not "good roads," which would raise these figures to over \$15,000 per mile. Not that it costs that much to build a mile, but we have spent that much money in ten years and have only these few miles to show. But we are progressing. Many bridges have been erected that will not require replacing for years, so accordingly we find 125 miles of hard roads were constructed in these counties in 1893.

It took all the previous years running back to the time the National Pike entered the State to make seven-eighths of all our hard road, while one year builds one-eighth.

The building of 1893 was done by 13 counties, showing that in 80 per cent. of the counties nothing is doing towards building permanent roads. LaSalle County alone in 1893 built 35 miles, one-fourth of all in this State in that year, spending \$2500 tax to get one mile of hard road, while fully 60 counties spent over a million dollars and report not a mile.

Sangamon County, having three-fourths as many people, seven-eighths the wealth, and nearly 25 per cent. the acreage of La Salle County, collected \$50,000 in 1893 and got no permanent roads.

Three counties only report over 100 miles of hard road and 5 more, or 8 in all, have 50 miles or over. It is very evident the dirt road is still with us.

Owing to the irregular manner in which our present road work is conducted, there is great difficulty in getting the expense per mile of building gravel roads. Three counties say over \$1000 per mile, and eight say \$1000 and less.

It appears that good gravel roads can be built for \$1500 per mile. Comparing the total tax of 1884 with that of ten years

later, 1893, in hard road counties an increase of nearly 20 per cent. is found. In dirt road counties it is only 5 per cent. increase. Taking it by counties, 21 hard roads show increase and 7 the same tax or decrease, whereas 16 dirt road counties show slight increase and 12 decrease. In other words, the way to make money is to spend it.

The counties making hard roads are progressive, and the good roads aid them to be so, yet in the ten years the dirt road counties manage to spend \$6,696,848, or some little over two-thirds as much as the hard road counties. The sum of tax in the hard and dirt road counties reported is \$16,631,194. Taking the wealth, population and acreage of the counties not reported, which statistics were procured from the Board of Equalization, 1891, we judge the amount of road and bridge tax for the State to be \$20,176,403. To this add the district tax, say 20 per cent. more, and we have a grand total of \$24,211,683 for the 10 year tax ending 1893.

As to the 65 previous years since the State entered the Union, millions have been spent, probably twice as much as in the past decade. It would be safe to say that \$75,000,000 have gone into and on the roads of Illinois.

From the total of all these figures, the following interesting comparisons are gathered :

During the ten years the hard road counties collected \$8.86 tax for each inhabitant. Only 87 cents per year. Are not you astonished at the smallness of the sum? In the dirt road counties they abstracted three fourths as much from each person, viz., \$6.74 for the ten years.

In hard road counties is found an average tax of 84 cents for each acre for 10 years. Just think of it! The munificent sum of 8 and 4-10 cents per acre! And yet our reports show that hard roads increase the value of land \$10 per acre. It is worse yet in the other group. Simply 46 cents per acre in all of those 45 counties is the amount of tax in the past ten years. Do you doubt it? Well, how many acres in Illinois? Thirty-four million. Now 7 cents a year for 10 years: 70 cents. Multiply this by the total acres and the result, \$25,800,000 approximates the total of the entire tax for ten years.

All of our figures have until this time been from facts. To digress a step, let us figure what a tax of \$10 an acre would do towards road building. It would yield us in this State \$34,000,000. At \$2,000 per mile this would build 17,000 miles or near 170 miles of good hard road in every county in this State. By issuing 15 year bonds this could be paid off with the same tax we now raise each year.

Of course no sane man anticipates any such gigantic attempt now, but startling figures are necessary to a proper realization of the case. Here is the farm and garden spot of the world,

and yet for five months in the year we cannot haul our products to market.

How do the figures show as to the individual? In hard road countries his average wealth is \$225, while in dirt road counties \$190 will buy his belongings. The hard road person has only 10.5 acres to the dirt road parties 14.6, but the land of the former is worth \$21.28 per acre and the latter only \$12.97.

It is very evident that even if you should claim that the hard roads were not the cause of this startling difference of \$8.31 per acre in the value of the land, you must admit that they have not injured the property.

One more comparison. In no more striking way can the weakness of the dirt road cause be shown than by stating that in ten years they assessed \$3.55 for each \$100 valuation, while the hard road counties only go \$3.94. That is where one raises 35 1-2 on the \$100, the other gets 39 1-2 on an average for each year.

In conclusion let us say that we anticipate publishing our information in full with maps and tables. We realize that it is not complete, and that errors may have crept in. We would be glad to correspond with anyone either to learn or give information.

GENERAL WIDE TIRE LAWS ARE BEST.

RIVERSIDE COUNTY has just adopted a wide-tire ordinance to prevent the destruction of new roads the county will build. That is well; but we fear it will be ineffective until there is a general law on the subject. Placer has a wide-tire ordinance also, but it is sleeping, because wagons of narrow tires belonging in adjoining counties roll into Placer and cut up the roads the wide tires make, hence the Placerites do not feel it to be just to enforce a law upon their own which the stranger may violate with impunity. So it will be in Riverside. There is a wide-tire bill before the Legislature, and it has a favorable committee report. But the bill simply gives the supervisors power to pass ordinances on the subject. The bill may as well pass as an educational measure; were it obligatory, however, there would be great virtue in it. It is possible that under it some counties may be encouraged to adopt the ordinance towards which the bill looks; but a general law, to take effect two years hence, is what the late Road Convention advised, and it knew what is needed in this matter.—*Sacramento (Cal.) Record Union.*

A HAWAIIAN SKETCH.

BY MRS. J. H. EMERY.

THE waning interest in the Sandwich Islands seems to have been reawaked by the recent abortive attempts to overthrow the new Republic; an attempt not at all unnatural on the part of the natives, as long as their deposed queen remained upon Hawaiian shores.

The sight of a woman in distress, no matter how well deserved her punishment may be, invariably appeals to the sympathetic American heart; so, plain Lydia Dominus, last of the Hawaiian monarchs, awaiting her trial and sentence for treason against the new government, touches a responsive chord never felt for Lilookalani, the arrogant Queen of the Sandwich Islands.

Our popular newspaper cartoons have so fully impressed upon a reading public that the Ex-Queen is a fat negress, speaking African dialect, that it is difficult to eradicate so erroneous an idea; in appearance she is a voluptuously built woman, rather darker than the average native, though it is said that she prefers her pictures to show a lighter tint.

She is possessed of considerable dignity and presence, her voice in ordinary conversation is smooth, soft and persuasive, but without the ring of sincerity.

Educated at the Royal School for Chiefs by the old missionary teachers, and thrown into companionship with them, much was hoped from her rule, but I have been told by old missionary teachers that even in girlhood she very early evinced her untrustworthiness, which was undoubtedly increased in later life by the influence of a profligate husband.

Perhaps when we remember her heredity, her mother being little more than an abandoned woman, and how, recently, the nation has emerged from heathenism, too much has been expected of the dusky Queen.

Shortly before the revolution, which resulted in the overthrow of the monarchy, I was presented to the Queen at a ladies' missionary board meeting, held at the Central Union Church (the same church that was to have been blown up with dynamite by Cranston and Muller during the late uprising); she most graciously extended her hand and conversed for some moments in an amiable manner, though with a slight trace of hauteur. The carriage of her head and contour of her face forcibly reminded me of one of the old Hawaiian wooden gods that I had seen in the Bernice Pauaha Bishop Museum, where it had been placed after being rescued from the mud and water of an old Taro patch.



THE ROYAL MAUSOLEUM.

No doubt a mind reader might have been amused at the jealousy and bitter hatred felt by the smooth-spoken sovereign for the white European, who, claiming no royalty, still felt proudly superior both in birth and blood.

The Queen was becomingly arrayed in a heavily jetted black satin "holoku," a black mantle and little bonnet; the "holoku" is the national dress of the Hawaiian women, being a simple "Mother Hubbard," and having its origin, we are told, in our American fashions of 1819, which called for a very deep yoke, short waist, and a belt almost under the armpits.

The American missionaries of that date found it a very difficult task to array their dusky converts on account of their huge forms, the Hawaiian idea of feminine beauty being fat; belts were out of the question, so a short "Mother Hubbard" was resorted to, which so pleased the natives that they exclaimed, "holo-ku," which means "we can run in them." Both the name and the garment were adopted.

Liluokalani not only speaks English fluently, but is devoted to music and poetry, composing both herself. At the dedication of the Central Union Church, just before the revolution, a poem, written and set to music by a young artist of Oahu College, was used in the dedicatory service; the Queen was so pleased with the music and sentiment that she sent for the author, complimented him highly, presented him with several



VOLCANO HOUSE, HAWAII.

sheets of music of her own composition and bearing her autograph, and as a still farther mark of her favor, permitted him, accompanied by a few friends, to visit the royal mausoleum where repose the bones of the "Kamehamchās," a privilege seldom granted, as admittance is "tabu" or forbidden.

■ The mausoleum is located at the mouth of the Nuuanu Valley ; in 1891 King Kalakaua was there entombed with great pomp and ceremony.

The ancient Hawaiian sepulchres, though very different, are no less interesting than this more modern tomb. Some six miles from Honolulu, between Diamond Head and Cocoa Head, both being extinct volcanoes forming lofty promontories that extend far into the ocean, past two fresh water streams flowing into the sea, and whose beds have been changed and forced nearer together by lava flows, is the beautiful valley of "Niu," overlooked by spurs of lava formed mountains. These lava spurs are destitute of verdure, excepting here and there where a giant prickly pear, or omnipresent lantana, find a footing. High up among these cliffs, in almost inaccessible places, where only an eagle could make its home, are to be found these burial places. *

Nature has assisted in building these sepulchres by forming¹ while the lava was hot, what are known as "lava pipes." In these pipes or caves the ancient Hawaiians laid away their dead, jealously guarding them from human eye.

It is almost incredible that, with their primitive means, they were enabled to perform such work.

Climbing with difficulty up the face of the cliff for several hundred feet, we came to a cave some twelve by fifteen feet in size and perhaps six feet high; what a ghastly sight met our astonished gaze. It was "Golgotha," indeed, "the place of a skull." Bones, bones, skulls, skulls; with grinning teeth and eyeless sockets; bundles and bundles of bones, wrapped in "tapa," or native bark cloth, and packed into native canoes, hollowed from hard wood trees and supplied with close-fitting covers. Together with the bones were many articles of savage treasure, among them was a stove-pipe hat woven in native braid, of a fashion of by-gone days; the ribs of an old umbrella, a piece of red flannel and some whale tooth beads, all in a perfect state of preservation.

The natives became very indignant at any desecration of these tombs that honeycomb the cliffs for miles around.

We visited a second tomb at a still greater elevation, but found little but dust to reward us. The descent was even more difficult than the ascent, climbing around narrow ledges, down steep declivities, where a false step threatened instant destruction, we at last reached level ground feeling well repaid for our labors, and more than ever impressed with the fact that the indolent Hawaiians are the most paradoxical people upon the face of the earth.

EDUCATE THE FARMERS.

HON. THOMAS M. BLACKSTOCK, of Sheboygan, who was elected president of Good Roads League, organized a short time ago in Milwaukee, is opposed to the adoption of radical legislation on the subject of roads. He holds, and very properly, that the farmers, who have most of the road taxes to pay and are more directly interested than any other class in the road question, should be consulted first. In a recent interview, among other things he says:

"We need to first arouse public sentiment on the subject. If we properly expend the money we already have, we can do a great deal towards making good roads. I am in favor of having practical road making taught at the farmers' institute. Farmers should know how to make good roads as well as how to breed good cattle or sheep or how to prepare the soil for good crops of all kinds.

"I do not think it will be necessary to issue a dollar's worth of bonds to improve the roads of the State. Let the money be spent intelligently, that's all."—*Madison (Wis.) Journal*.

ESTIMATES WANTED.

WHY does not some one state in GOOD ROADS what a good working rock breaker will cost, how much it will do in a day, what the power will cost, and if he can give some valid reason why a half dozen farmers who are decent, progressive live men, should not buy such a plant, and during the winter crush stone and haul it while their mire-hole roads are frozen so they can haul more than a bushel at a time? Their men and teams need exercise at this season, and great good can be done toward making stone roads before the next break-up of the said swamps.

What farmers will be the first to start in this sort of thing, which they well know will bring their farms miles nearer markets for produce, and increase their value largely in actual dollars.

If you have anything to say, Mr. Editor, say it!

STAM.

[Yes, we *have* something to say, and it is this: Stampson has suggested an eminently practical method of doing good work, and we would add that as all farmers understand horses, while few are familiar with the steam engine, and as the farmers' horses have plenty of leisure during the winter, it might be well for them to use horse power instead of steam.

GOOD ROADS would be glad to print further communications on this subject,

We would like to hear from parties who can give the exact cost of such an outfit as Stampson describes, also the difference in cost between a suitable steam engine and a horse power.

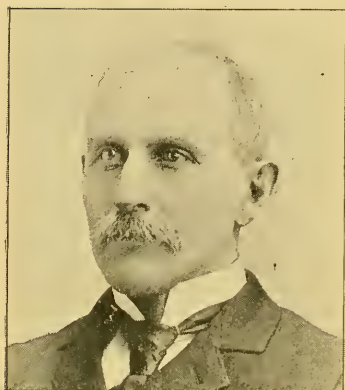
Please don't forget to name the number of theoretical horse power needed to drive a given crusher, and also the number of horses needed to do the same work.—ED.]

A NEW PAVING MATERIAL.

A NEW material, composed of coir fibre, which is obtained from the husk of the cocoanut mixed with bitumen, is about to be introduced into England for road paving. When formed into blocks and laid on a roadway, it forms a surface which is said to possess all the advantages of wood and asphalt, with none of the objections to those materials. It is wholly impervious to moisture, gives a sure foothold for horses, is very durable, and is, moreover, very cheap, and the old material can be utilized again and again for making new blocks.

WHAT MICHIGAN IS DOING.

BY FREEMAN LATHROP.



FREEMAN LATHROP.

FOR more than two hundred and fifty years the country road in America has, for the most part, played the character of a tramp.

Wearing the garb of a slattern, it has seldom had where to lay its head. Like the publican of old, it has fallen among thieves who have robbed it of its just dues, in the way of taxes levied for its benefit, but which have seldom been honestly paid. Until recently, the good Samaritan in its behalf has belonged to an extinct species, but lately his spirit seems to have been re-embodied, and he is striving

to minister to its wants, nurse its energies, and place it in position to fulfil its legitimate functions in the economy of the nation.

This condition of things is perfectly natural, and the logical sequence of pre-existing causes.

The great, the supreme question that confronts the dweller in the frontier cabin is existence, and anything that does not minister directly and immediately to that end must be passed by. Food and clothing are the objects directly sought. A road does not aid directly in that achievement, other than it enables the settler, a portion of the year, to traverse it with a more or less crude conveyance to secure the necessities of life.

It should be remembered that the frontier in America commenced upon the shores of the Atlantic, and the conditions pertaining to it have extended thence westward, as the ascending smoke from the pioneer's cabin has receded towards the setting sun.

Then, again, this principle rules: that when that machine which we call man is once set in motion and run for a time in one direction, he seems to wear grooves or ruts, out of which or from which it is difficult to turn him.

These habits, for that is what we generally term them, when once fixed, are so obdurate that it is difficult for him to disengage himself from them, even when they are antagonistic to those principles which he is quite willing to accept when not applied to the particular case in hand.

At the very outset the country highway became an object of neglect, and has naturally continued to be found in the rear ranks of the advancing army of progress.

These, I believe to be the logical reasons why multitudes of intelligent men are found to-day clinging with tenacity to methods of treating the country road that they would not for a moment consider touching any matter of personal or individual business.

Placed at the entrance to the Transportation Building at the World's Fair, were these words of Macaulay: "Three things make a nation powerful and great: a fertile soil, busy workshops and easy transportation for men and goods from place to place."

Michigan has the fertile soil and busy workshops, but the easy transportation is limited to her lines of railroad.

Possessing excellent material in nearly every county and township, even, for the construction of good roads, it is a lamentable fact that for the most part her country roads are an abomination. Her roads are dirt roads. Few of them, outside of toll roads are graveled, and where gravel roads are found, they exist in detached links, and the work is ineffectually done, conforming to no standard or gauge.

The great difficulty under which Michigan has been laboring up to date is lack of any system. She has been running under that old slipshod, go-as-you-please law of assessing a labor tax in each township, and electing pathmasters to supervise the work. These pathmasters serve for one year. There has been no law directing how any road should be built outside of toll roads, so that each of the thousand pathmasters has followed his own sweet will.

Comparatively little honest work has been done and most of that has been injudiciously applied. How could anything else be expected while working under such a law? I believe that the consensus of opinion among the intelligent farmers will sanction the statement that on the average one-third the road tax, if paid in money, would accomplish as much as the whole applied directly in labor.

I once saw a picture which I think would furnish a fitting cartoon of the average country road under the foregoing regime. It represented a homeless feline, lean and lank, sitting upon its haunches, wearing a lonesome, forlorn countenance, having a discouraged air, its fur pointing in the direction of its nose, and under it was written the legend: "Nobody's Cat."

I believe it is demonstrated that no people and no nation has secured permanent and first-class roads for any great extent of territory, when relying entirely upon local taxation. The farming community must not be asked to build the country roads alone. The State must interest itself, and furnish in some

manner a portion of the road fund. The country roads are for the benefit of the public at large.

At the present time here in Michigan, the total assessed valuation of the State, including the corporate property paying specific taxes, is over eighteen hundred millions. Of this amount only about six hundred millions pay any tax for the benefit of the public highways, which seems to be an injustice. And yet, while Michigan has had a farmer governor for over six years, we have not elicited from him a word in favor of State aid for the public highways.

The farmers in this State have expended in labor and money during the last fifty years one hundred millions, or what represents that amount. I have reference now to the taxes levied, more than half of which, however, have been frittered away for the reason that the labor tax has too often been paid by *time furnished* rather than *labor actually performed*, and often both labor and money have been injudiciously applied because there was no rule to work to and no law governing.

Two years ago our Legislature passed a road law which is called the county road system. This provided for a general county tax, and for the issuing of road bonds under certain conditions; also for a Board of Road Commissioners in each county who should select the roads to come under the county system and have entire jurisdiction of the roads, the work on them and the road money. It was optional with each county whether to adopt this or not. It required a two-thirds vote of the Board of Supervisors to submit it to a vote of the people of the county. I believe but three counties in the lower peninsula have adopted it. These are Bay, Alpena and Muskegon; all shore counties. A proposition to submit to the people has been defeated twice in this county, and, I think, in Wayne, which includes Detroit. It was submitted in Saginaw County, but buried deep at the polls. If this system were accepted in this county, the city of Grand Rapids would have 64 1-2 per cent. of the total tax to pay, every dollar of which would be expended in the county, and yet it was supported by the city supervisors, but defeated by those from the county.

Mr. Roy Stone has told us what is first necessary to secure good roads, but, in my opinion, he does not go back far enough. It is no use to lead a horse to water if he won't drink. It is useless to preach the true God to a people unless you can make them dissatisfied with the idols they are already worshipping. While there are notable exceptions, the average farmer with us seems to be grown too fast to the old traditions in the matter of handling country roads.

What we seem to need, first, here in Michigan, with reference to securing good roads, is some John the Baptist to prepare the way, and a St. Paul who shall turn the world upside down

on this subject. We need a spirit to arise touched by fire from off the altar, gifted with a pen dipped in inspiration and a voice attuned to the popular ear, who can instill into this generally dry subject the odor of sweet herbs, and infuse into it a magnetism that shall be irresistible, and bring the people to their normal sense on this question.

There are a number of questions pertaining to the county highway that I have not touched upon that apply to Michigan and every other State, but space is limited.

WIDE TIRES.

As to the matter of wide tires for vehicles carrying heavy loads, which I am asked to dwell upon, you can see that we have hardly reached that stage of progress where that question is largely discussed. It is, however, coming forward. The tire in use in hauling heavy loads in this vicinity is either three inches or three and a half inches. With the advent of really good roads, the tire will likely be made four inches. That is the opinion of the farmers with progressive ideas.

The wide tire is not a road maker, but it is a wonderful road preserver. There is hardly a place where in hauling heavy loads a wide tire will not do as well as a narrow one, and generally much better.

While I have not given a rosy picture of the condition of the country roads in Michigan, let not the reader think we are in despair. In fact, the glimmerings of the morning twilight of a better day are already visible; and although the county road with us, after having belonged to the family of States for more than half a century, must still be considered in the caterpillar age, not yet having reached the chrysalis state, and many leagues removed from the full butterfly development, yet we have succeeded in arousing something like intense agitation of the question. There are many bills affecting the road law, before our Legislature, and it hardly needs the prophetic eye of the ancient seer to predict with certainty that the next decade will do for Michigan in this matter more than the half century that has past.

THIS EDITOR MUST HAVE BEEN BITTEN.

IF you pick up a starving dog and make him prosperous, he will not bite you. This is the principal difference between a dog and a man.—*Ex.*

SOME ECONOMIC PHASES OF GOOD ROADS.

J. R. COMMONS,
Of the Indiana University.



J. R. COMMONS.

THIS subject involves several questions. The principal ones are these: How much is the benefit derived from good roads? Who gets the benefit? How much does it cost? Who pays for it? Who ought to pay for it?

General Stone, of the Federal Department of Agriculture, has found three independent estimates which place the yearly loss to farmers in the United States from bad roads at about \$600,000,000, equivalent to \$1 an acre annually. Capitalized at five per cent., this amount, if

saved, would increase the value of farm land \$20 an acre, or a total increase of \$12,000,000,000. As the total value of all farms is about \$26,000,000,000 this would be an increase of fifty per cent. in their value. As the total annual value of farm products is only \$2,600,000,000, one-fourth of its value is lost through bad roads.

Comparisons have also been made with foreign countries. The English horse does twice the work of the American horse, the French horse three times the work; not because they are better horses, but because they travel better roads. Mr. Wollen estimates the annual cost of maintaining a horse at \$100. If only one-fourth of the horses in Indiana could be spared, instead of one-half or two-thirds as in England or France, the annual saving in horse maintenance for this State alone would be \$30,000,000. Professor Ely holds that poor roads cost the farmer \$15 per horse.

These estimates are none too high. The gain from good roads when once they are completed will make the most cautious statistics seem fabulous. But there are two or three special points to be considered. The tremendous fall in prices of farm products in recent years is a heavy drawback to road improvement. Farm products have fallen in prices even more than the roads have benefitted the farmer. In 1882, according to the reports of the Secretary of Agriculture, the average value of the corn product in the United States was \$11.94 per acre; in 1893 it was \$8.21 per acre, a fall of 31 per cent. Oats fell from \$11.48 per acre in 1882, to \$6.88 per acre in 1893, 40 per cent.; wheat yielded \$12 per acre in 1882, only \$6.16 in

1893, a fall of nearly 50 per cent. But the cost of production, according to the estimates of 25,000 farmers is \$11.69 per acre—\$12.39 in Indiana—nearly double the price received for the product. Horses, which in 1882 averaged \$61 a head, are only \$48 in 1894, a fall of 21 per cent. in 13 years. With horses so cheap and grain still cheaper to feed them, it is not likely that farmers can spend much money in building roads to economize horse flesh.

As a result of this universal fall in products, the values of farm lands have fallen correspondingly. Consequently a large part of the stone and gravel roads which have been built during the last fifteen years, have not served to raise the value of abutting farm property, as should be expected from the estimates I have quoted, but have merely protected it from the universal fall of all such property. In many cases even the benefitted farm lands have actually fallen in value, notwithstanding the advent of the hard road.

Closely connected with this is another point to be noted, namely, that it takes several years for farmers to realize the increased value which good roads bring. In order to take advantage of good roads, the farmer must adopt a more intensive method of cultivation. Must introduce crops for which there is a market demand, must invest in more machinery and implements. All of this requires time, and meanwhile the farmer is compelled to pay his assessments in cash derived from the sales of depreciated products.

To illustrate these two points I have personally examined many of the farms along four of the macadam roads running out of the city of Bloomington. These roads were completed in the years 1884-85 at an average cost of about \$2,000 per mile. The assessments on farms within the two-mile limit ran from a few cents per acre to \$2.70 per acre. There was no other pike built in the county until 1889, so that if these pikes had any appreciable effect on farm values it would appear by comparing the townships which were benefitted with those which were not, before and after the pikes were built. There were four townships directly benefitted by the roads, three townships partially benefitted, and four not benefitted. Taking first the assessed value of farm land (excluding railroad property and the city of Bloomington) and comparing the assessed values in 1882, before the pikes were built, with the assessed values in 1888 when the first succeeding real estate assessment was made, the value of farm lands in the benefitted townships, as well as in all other townships, showed an actual falling off at the latter date. This was true, not only of the townships as a whole, but also of individual farms lying on the pikes. It required more than three years, therefore, after the roads were completed, for the increase of values to show itself in the assessments.

In 1891 a new assessment was made under the new tax law, which, as every one knows, greatly increased the average valuation of all property throughout the State. Farm property, which under the old law was assessed at 50 to 70 per cent. of its true value, was now listed at 80 to 90 per cent. In this assessment, six to seven years after the completion of the roads, the effects on farm values begin to appear. In the unbenefitted townships, the valuation of farm land rose only 1 per cent. above the values in 1882; in the three partially benefitted townships it rose 13 per cent.; and in the four townships benefitted by the roads it rose 20 per cent. above the values of 1882. It would seem, therefore, that in about six or seven years after the completion of the pikes, the assessed values of farms began to show distinctly the effect of good roads.

If now we estimate the changes in the *true values* of farm property, assuming that the assessed values had been increased from about 65 per cent. of the true value to 85 per cent. of the true value, an increase of 30 per cent. in the rate of assessment owing to the operations of the law of 1891, it would follow upon a simple calculation that in the unbenefitted townships where the assessed values rose 1 per cent., the true values had fallen in the ten years about 25 per cent.; in the partially benefitted townships the fall had been about 15 per cent., and in the benefitted townships, with a rise in the assessed value of 20 per cent., there had been a fall in the true value of about 8 per cent. This agrees with answers to inquiries made of farmers along the line of the best of the four pikes. A typical farm of 110 acres, lying on the pike three miles from town, for which \$65 an acre was offered and refused in 1880, before the pike was built, could now be bought with about the same improvements for \$60 an acre. At that time it was assessed at \$43 an acre, being 66 per cent. of its true value; now it is assessed at \$50 an acre, i. e., 83 per cent. of its true value.

So far then as these pikes about Bloomington are concerned, they seem fully to sustain my position that good roads in these days do not raise the values of farm lands, and so actually increase the real economic prosperity of the farmer, but they merely protect him, in a measure, from the universal depression which has been settling upon his fellow farmers.

I do not intend, however, to hold that farmers are not benefitted by good roads. Indeed, they are highly benefitted relatively if their farm values remain even stationary and do not decline, since *there is almost no market at all nowadays for farms without such roads*. What I maintain is this, that farmers under the present fall in prices of farm products and farm lands cannot afford to bear *all* the expense of building the county roads, as they have done in the past. If we are to have good roads the cities must help the farmers.

Cities are benefitted as much as farmers, or even more, by good roads. While the average assessment of all farm lands in Monroe County increased 12 per cent. in 10 years, 20 per cent. in those townships benefitted by stone roads, and 26 per cent. in one of the townships most highly benefitted, the value of lots in the city of Bloomington rose 107 per cent. Even this is not a fair comparison, since the best business lots are valued at only 50 per cent. of their true value, while farm lands are valued at 80 to 90 per cent. All over this State, and in every State, city lots are jumping up in value while farm lands are tumbling down. Various reasons are assigned for this, such as railroads, manufactures, protective tariff, concentration of population. To these reasons should be added improved country roads. The manufacturer and the wholesale merchant here in Indianapolis are benefitted by good roads in every county of the State. Their manufactured products are shipped by rail to the towns and villages and smaller cities. Three-fourths of their ultimate patrons are farmers. The farmer cannot purchase if he cannot sell. If, on account of bad roads, he must be content with a miserable existence on what he can produce and consume on his own farm, and carries only enough products to market to pay his taxes, how can he buy anything from the town merchants? And if he cannot buy from them, they cannot buy from the wholesalers and manufacturers. Thus it is that the retailers and small manufacturers in the towns, the wholesalers and large manufacturers in the cities should be as much interested in paying for good roads all over the State as the farmers. Besides this, farm products can be sold much cheaper to the residents of cities if the cost of carriage is reduced.

Under our present system of road building, the cities do not assist proportionately to the benefits received. Under the two-mile law, the property owners of Bloomington paid about 10 per cent. of the cost of all the 32 miles of pikes radiating from itself, and yet Bloomington has 33 per cent. of the total property, and 20 per cent. of the land values, and should have paid 20 to 30 per cent. of the cost. The law of 1893 enabling townships to build roads, and including any city of less than 30,000 population within the township, is an improvement on the old law, and is already adding largely to the good road mileage. But it does not go far enough. The law of 1891 in the State of New Jersey is the first step towards the system which has given Europe its magnificent roads. According to that law, property owners who are benefitted are assessed one-tenth of the cost of the road, the State pays one-third and the county the remainder. A bill introduced before the Legislature of New York, but not adopted, seems to reach a fair apportionment. One-third is to be paid by the State, one-third by the county, and one-third by property owners in the benefitted district.

Why should the county and State pay two-thirds? Because, in the first place, under the existing special assessment plan, the farmers who build the road pay a double tax. They are taxed first for the building of the road. This may be looked upon as an investment upon which a return is expected in the increased values of their land. But when this expected increase takes place, their ordinary assessment is also increased and with it their ordinary taxes. At the same time, as farm lands increase in value, more extensive improvements and larger stocks of personal property are concentrated on these better situated lands, which are then also added to the tax list. Thus, in the two-fold way of a special tax and an increased ordinary tax, the benefitted farmers find that they are compelled to pay a larger share of township, county and State taxes.

For example, in Monroe County the four townships already mentioned as benefitted by the stone roads paid, in 1882, 28 per cent. of the county's direct taxes (excluding railroad taxes), while in 1892 their share had increased to 31 per cent. But the share of the unbenefitted townships, which was 30 per cent. in 1882, had fallen to only 23 per cent. in 1892, and the partially benefitted townships paid the same proportion, 15 per cent.

Again, taking the individual farmers in the benefitted districts, who had previously paid their special assessments, I find the yearly taxes on their farm lands have been raised 20, 40, 50, 70, and in one case 104 per cent., through increased valuations. It was the rise in the valuation of these farms which had already paid the special assessment that increased the average valuation of the benefitted townships the 20 per cent. already mentioned. Consequently, the farmers who built those pikes taxed themselves for a common improvement in order that they might pay more taxes. This is the very reason why the county and State should take a large share of the initial expense off their hands. The rise in value of their farms, and the additional improvements and personalty, will compel them anyhow to pay a larger share of county and State taxes in return for the benefits received.

In the second place, the county and State should pay two-thirds, because only in this way can the cities contribute their just share. City lots are rising as a result of road improvement (along with other reasons). Bloomington in 1882 paid 27 per cent. of the county's direct taxes, and in 1892 she paid 33 per cent., an increase due mainly to the disproportionate increase in the values of her town lots. Throughout the State the larger cities, which are of course absorbing the larger benefits of the State's economic progress, would more and more make a proper return if they contributed to a county and State tax which pays the expense incurred in promoting that progress.

The objection is made that cities have their own heavy

expenses for building and maintaining their streets, to which the farmers do not contribute, and, therefore, the farmers should not ask them for help in constructing their country roads. The answer is that only the main gravel and macadam roads are contemplated under the New Jersey and similar laws, which might properly be called county or State roads, and that if cities have streets to maintain, farmers have township and cross roads to maintain, to make connections with the pikes. The townships of Indiana tax their property owners 10 to 15 cents on the \$100 for maintaining their own dirt roads, and an additional special tax for new roads, while the city of Indianapolis has a tax for the care of its streets, and special assessments for new streets. Boston spends 16 cents on the \$100 valuation for care of streets. The one offsets the other, leaving the great thoroughfares connecting the cities and villages as a proper charge for all in common.

Again, the federal government has protected manufactures, and fostered those industries which concentrate in cities. From helpless infants they have become stalwart adults. The farmer has paid the bills. Now agriculture is in a position to need protection. The best possible protection is good roads. If we wait for the farmer to build the roads, we assign him a burden he cannot bear in the present condition of his industry. Good roads must precede agriculture, just as protection preceded manufactures—then we shall develop our greatest industry so that in course of time it will be able, like manufactures, to bear increased taxes and thus recompense the State for the outlay in its behalf.

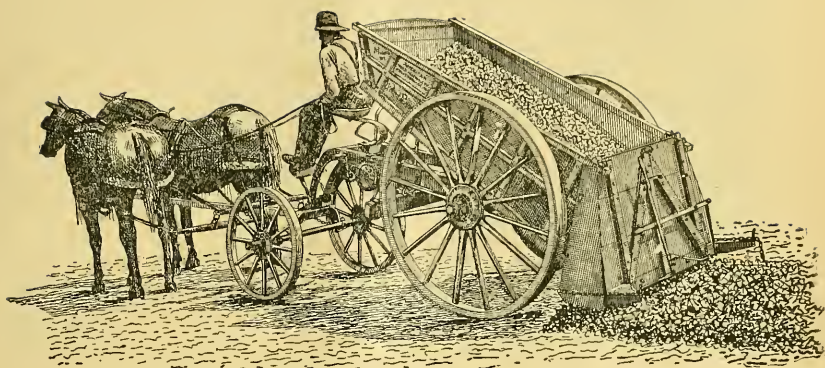
But the federal government cannot undertake this expense. It remains for the State governments to do so. Let the federal government protect manufactures and commerce, let the State governments foster agriculture. How can it be done? The most economical and efficient aid is found, perhaps, in the creation of a State Highway Commission. Massachusetts established such a commission in 1892, composed of three members, receiving each \$2,000 salary. Their first report, issued in 1893, is a practical and valuable document for road builders and students of the road question, and especially is it useful for local supervisors of Massachusetts. Ohio and Pennsylvania have also successful commissions. Indiana has already discovered the great value of permanent State commissions in other fields. Our State Board of Charities and Corrections has done more than any other agency in improving the administration of poor relief in the township, of jails, penitentiaries and asylums, and in supervising the construction of jails and poorhouses. The State Board of Tax Commissioners is the first successful agency for reaching the property of wealthy corporations. A State Highway Commission, composed of experts, giving their

entire time to their work, assisting county and township supervisors, would do more for road improvement in Indiana than any other legal arrangement.

Next, the State should make appropriations in aid of county gravel and macadam roads, like the State aid in New Jersey. It might not go so far as to contribute one-third, but it should assist liberally. It has been estimated that Indiana spends \$2,600,000 yearly for roads. One-fourth or one-third of this could bring better results if expended by the State instead of counties and townships, under the supervision of the State Highway Commission.

But how is the State to get the money? Taxes are already so high that no political party can safely afford to increase them. Yet there is one prolific and painless source of State revenue as yet overlooked by our law makers. I mean the inheritance tax. Neighboring States have such a tax. Ohio taxes estates on a progressive scale of one per cent. on a surplus above \$5,000, and rising to 5 per cent. on estates of \$1,000,000 and over. New York gets \$2,000,000 to \$4,000,000 a year from this tax. If Indiana had a tax like the one in Geneva, Switzerland, it would yield probably \$4,000,000 a year, and a tax like the one in Ohio would yield fully \$1,000,000. The inheritance tax is not a tax in the ordinary sense. It does not press upon industry. It does not take from a man what he has earned. Only a few pay the tax. It comes mainly from the cities, and from great estates which could not have been accumulated and devised without the fostering care of the State government. Such a tax should be devoted to the two great purposes of free schools and free roads. These are the two ways in which the State can best build up its citizens, especially those in the poorer sections. Both expenditures return to the State compound interest. They make better citizens and better taxpayers.

And so, in conclusion it seems to me from a comparison with what other States are doing, that the lines of sharpest attack for the advocates of road improvement in Indiana are an inheritance tax for State aid to county roads, and a highway commission to administer it. In this way could the entire State, without adding to its present burdens, promote the building of the best roads where they are most needed, and thereby relieve the farmer in his depressed condition, stimulate agriculture and create a market for its manufacturers, merchants and laborers.



THE CHAMPION DISTRIBUTING CART.

THE American Road Machine Company, located at Kennett Square, Pa., widely known as builders of high class road making machinery and tools, have designed and are now offering a special form of cart for hauling, dumping and spreading broken stone, and which they have styled the "Champion Distributing Cart."

It is a great improvement over the old-fashioned, ordinary dumping cart so long employed in road building operations, possessing advantages that cannot fail to commend it to engineers, contractors, road, street and park commissioners and others interested in good road and street work.

By its use broken stone may be handled much more quickly and at considerably less expense than has heretofore been possible — and in a more satisfactory manner.

The dumping and spreading of broken stone is usually attended with a cloud of fine dust which is blown into neighboring residences and settles on furniture, resulting in considerable annoyance and damage; the finest particles of stone and dust not blown away will settle at the bottom of the pile, making it impossible to spread the stone uniformly, thus defeating one of the main principles of stone road construction, viz., the proper distribution of the material on all parts of the roadway.

The "Champion Distributing Cart" overcomes all of these obstacles effectually. It is a dump cart mounted upon four wheels. The weight is well distributed on both front and rear wheels, thus avoiding either upward or downward pressure on the team. The tilting of the cart is effected by a crank and gear mechanism in connection with a rack and pinion, which not only renders easy the tilting of a heavy load, but is also of great advantage when it is desired to load the cart with shovels,

as the cart can be firmly held in any position from level to completely dumped.

The tail-board is hinged at its upper edge, allowing the lower edge to swing outward. Two adjusting chains limit the outward swing when the cart is used as a spreader.

Steel wings are attached to either side of the cart at the tailboard for the purpose of spreading the stone to the entire width of the track of wheels. The stone as it escapes from the cart is levelled by means of a steel scraper attached to the bottom of the tail-board.

This scraper is pivoted at the centre and is adjustable at either end by means of a horizontal lever on back of tail-board. This feature is of great value, as in the construction of stone streets it is necessary in many cases to spread thicker in the middle of the road than at the sides; if the scraper was stationary this could not be done, but as it is adjustable it can be spread thicker on one side than on the other. This adjustable scraper will also be found very useful when it is desired to spread but half the width of the cart; thus, if the road to be constructed is twelve feet in width, the smaller size cart will spread to a width of five feet, and it will readily be seen that after the cart has spread two widths there will be two feet of roadway yet to spread, or three feet less than the width of the cart; by adjusting the scraper and driving one wheel on the stone already spread about three feet from the edge, the remaining two feet can be easily spread.

The "Champion Distributing Cart" is built in two sizes — for two or three horses working abreast.

The smaller two-horse size has a capacity of 1 1-2 yards; is mounted upon 2 1-2 inch steel rear axle and 5-foot wheels with 5-inch tread, tread 5 feet. It will spread to a width of 5 feet. Front axle 2-inch steel, 3-foot wheels with 3-inch tread; tread to track inside of rear wheels.

The larger (3-horse) size has a capacity of 2 1-2 yards; is mounted on 3-inch steel rear axle and 5-foot wheels with 6-inch tread. Front wheels same as smaller size; tread to track inside of rear wheels. Spreading width, 7 1-2 feet. Both carts are provided with a good foot-lever brake convenient to the driver's seat.

The "Champion Distributing Cart" is built for hard service and only the best of materials have been used in its construction. White oak is generally employed, the floor of the cart and sides being planked with hickory, bolted to place. The wheels are "A 1" in every particular, the castings are mostly of malleable iron and, in short, every part denotes careful and consistent construction.

A very attractive feature of the cart is its all around usefulness. None of the conveniences of the common cart have been

sacrificed in the design of the "Champion," and it is the most perfect and convenient general purpose cart on the market, and can be used for hauling plank, stone, earth, etc., etc.

The American Road Machine Company are firm believers in the efficacy of wide tires on any draft vehicle, and have endeavored in designing the "Champion Distributing Cart" to combine the good effects of the roller with that of the spreader, by making the tires of more than ordinary width and having the front wheels to tree inside of the rear wheels, thus giving a rolling space of 16 inches on the two-horse cart and 18 inches on the three-horse cart.

A finely illustrated catalogue of this cart, with fuller description, prices, etc., may be obtained of the manufacturers upon application.

A GOOD ROADS BILL.

A GOOD roads bill introduced in the New York Legislature is skillfully drawn so as to overcome in a large measure the prejudice of local tax-payers against road building. It provides that the expense of road improvement be borne one-half by the State, one-fourth by the county and one-fourth by the towns along the line of the roads that are constructed. The Board of Railway Commissioners is put in charge of the road building, a road engineer being attached to their service. It is made the duty of the board to hold public meetings in different parts of the State in order to promote public sentiment in favor of better roads. Roads are to be improved on petition of two-thirds of the owners of land along which they pass, if the people in the towns through which such roads run favor the improvement. In order to start the work the bill contains an appropriation of \$250,000.

The system as proposed would seem to be likely to promote road building. If good roads are worth having, it is surely a wise expenditure of money on the part of the State to encourage their construction. It can well afford to invest a considerable sum each year in this manner. Insomuch as it seems the only way of getting the movement for better roads started, the New York plan to have the local tax-payer relieved from direct payments is a highly practical one. By making the construction of improved roads dependent on the expressed wishes of property owners a proper limitation is set upon the amount of road building, while at the same time it is likely to cause competition among different communities to get the start of each other in this respect.



Day of Year.	Day of Month.	Day of Week.	Length of Day. H. M.
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THIRD ▲ March, 1895 ▲ MONTH

60	1	Fr.	11 15
61	2	Sa.	11 18
62	3	S.	11 21
63	4	M.	11 24
64	5	Tu.	11 26
65	6	W.	11 29
66	7	Th.	11 31
67	8	Fr.	11 34
68	9	Sa.	11 37
69	10	S.	11 40
70	11	M.	11 43
71	12	Tu.	11 46
72	13	W.	11 49
73	14	Th.	11 52
74	15	Fr.	11 55
75	16	Sa.	11 58
76	17	S.	12 01
77	18	M.	12 03
78	19	Tu.	12 06
79	20	W.	12 09
80	21	Th.	12 12
81	22	Fr.	12 15
82	23	Sa.	12 18
83	24	S.	12 21
84	25	M.	12 24
85	26	Tu.	12 26
86	27	W.	12 29
87	28	Th.	12 32
88	29	Fr.	12 35
89	30	Sa.	12 38
90	31	S.	12 41

Give the cattle an open shed, where they can enjoy the sunshine sheltered from the cold March winds. This will save food, and the milch cows will give more milk. The early lambs not only need an open shed in which to sun themselves, but on cold, stormy days they need a warm barn where they can have plenty of room and dry bedding; it is also important to have the barn well ventilated. Good lambs bring such a price that it pays well to take the best care of them.

Now is a good time to decide what crops are to be grown the coming season; and when the decision is made, lose no time in buying what seed may be needed. It is very poor policy to wait and buy seed but a day or two before it is wanted; the chances are that in doing so not as good seed will be obtained, and as there is no time to test it, a partial or total failure may be the result, when, if the seed had been procured in time, it might have been tested, and a failure prevented.

See to it that the farm implements are all in good order and ready for business when spring opens; make what repairs are needed, and give all that need it a good coat of paint. This the farmer can do himself, and save the money it would cost him to hire it done.

LEAGUE OF AMERICAN WHEELMEN.

..... Organized 1880.

A voluntary organization having for its object the systematic improvement of the public roads, and the protection of wheelmen against unjust legislation. The present officers of the League are as follows :

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First Vice-President.—GEO. A. PERKINS, 15 Court Square, Boston, Mass.

Second Vice-President.—A. C. MORRISON, Milwaukee, Wis.

Secretary.—ABBOT BASSETT, 12 Pearl Street, Boston, Mass.

Treasurer.—A. E. MERGENTHALER, Ohio.



GOOD ROADS MAGAZINE

in its present form is discontinued with this issue.

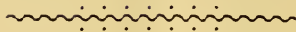
The new publication

“L. A. W. Bulletin and Good Roads”

will combine the matter heretofore published in the two separate periodicals.

The first issue will appear April fourth and weekly thereafter.

Opening of a Chestnut Burr.



AN HONEST LAWYER.

"I'll not stand your abuse any longer, sir," thundered an irate judge who had been violently criticized in his rulings by a junior counsel. "You are fined fifty dollars for contempt of court."

"If you want to fine me for it," was the attorney's reply, "fifty dollars won't come anything near covering it."—*Town Topics.*

THREE FOOLS.

There was a business man who failed
To win the longed-for prize,
Of riches and prosperity,—
He did not advertise.

There was a lover once who died,
Quite wretched, I suppose,
Because all through his life, he was
Too bashful to propose.

There was another man, whose ways
His neighbors greatly pained,
Because, he didn't know enough
To go in when it rained.

All three were fools. But worst of all
To everybody's eyes,
Was he who was a business man,
And didn't advertise.

—*Clay Record.*

A CAN CAN JOKE.

An Englishman said to a Boston girl: "What do you do with all your vegetables in the United States." She replied, "We eat all we can and can all we can't."—*Ex.*

A VALUABLE SUGGESTION.

Ragged Richard (insinuatingly)—Say, mister, have yer got enny suggestions ter make ter a feller, w't ain't able ter raise er dime ter get shaved with?"

Grumpie (passing on)—Yes; raise whiskers.—*Ex.*

GOOD ADVICE.

If you are tempted to reveal
A tale some one to you has told
About another, make it pass,
Before you speak, three gates of gold.

These narrow gates—First, Is it true?
Then, Is it needful? In your mind
Give truthful answer. And the next
Is last and narrowest—Is it kind?

And if to reach your lips at last
It passes through these gateways three,
Then you may tell the tale, nor fear
What the result of speech will be.

—*The Housekeeper.*

A NATURAL FINANCIER.

Footman—Say, Jeems, what would we do if we found a pocketbook with \$20,000 that the boss had left in the carriage? Coachman—Do? We wouldn't do nothing at all. We'd live on our income.—*Unidentified.*

EASY ECONOMY.

"Light of my life!" the young man cried
A-courting of his lass;
"If that's the case," the maid replied,
"Let us turn down the gas."



THE SEQUEL.

(See finispiece in February Number.)

THE UNION SPECIAL.

Ridden by A. W. W. Evans, of New Brunswick, N. J.

TAKES TIME PRIZE AND THIRD PLACE

In the 100-Mile Road Race of the Atalanta
Wheelmen from New York to Princeton
and return.

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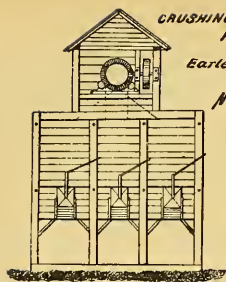
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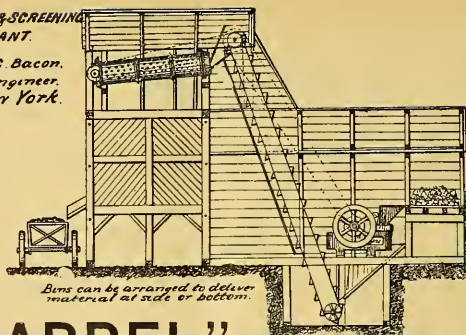
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Earle C. Bacon.
Engineer.
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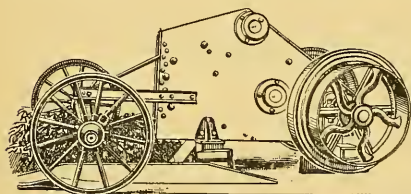
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Width of Tire, 6 in.
Height of Bolster,
30 in.



This is just the wagon for your farm, whether it be wet, sandy or side hill. Send us your address on a postal card, and we will mail you free a book of photographs, showing how the farmers in every State in the Union are using this wagon.

We wish you or your son for our agent, to take orders in your neighborhood. Apply for agency, and we will show you how you can make money and not interfere with your farm work.

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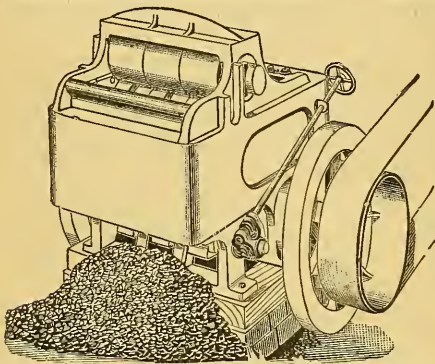
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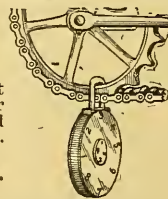


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Keyless; nicked; lightest in market. Every rider needs it. For sale by all dealers, or 50 cts. postpaid.

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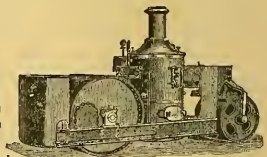
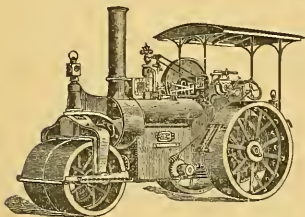
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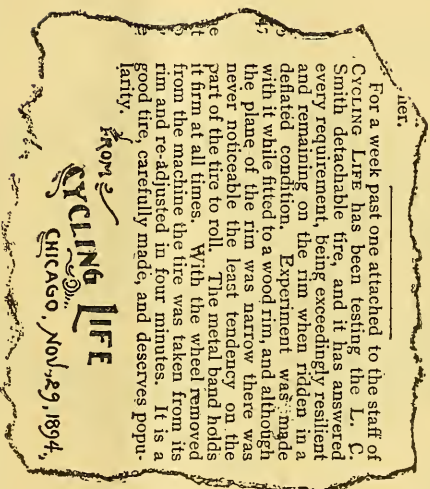
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It places the rider in the most advantageous position over his work, and not only adds to the strength and rigidity of the frame by preventing side strain or twisting of the frame by the sprocket, but greatly improves the appearance of the wheel.

Read what this rider says:

FENTON, MICH., Aug. 13, 1894.

Keating Wheel Co., Holyoke, Mass.

Gentlemen.—Handicapped by the loss of one arm, I have sought for a long time to find the easiest running bicycle. Among the many wheels I have owned and ridden, I have chosen the KEATING as the easiest running, the lightest, and strongest wheel.

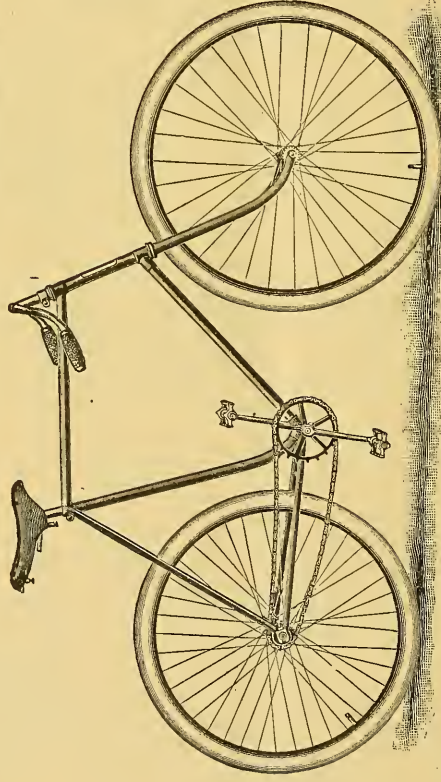
I think the curve in the seat post or center brace places the power of the rider where it is best applied, makes the draft from the sprocket almost direct instead of a side pull, thus preventing side strain or twisting or friction, which are so common in wheels having a straight post.

I can now make all the club runs, climb hills, and keep right in the front with the rest of the riders.

Yours very truly, J. MAX DAVIS.

We have some new ideas for '95, and if you are interested in knowing NOW which is the best wheel, and WHY, send your name for illustrated booklet.

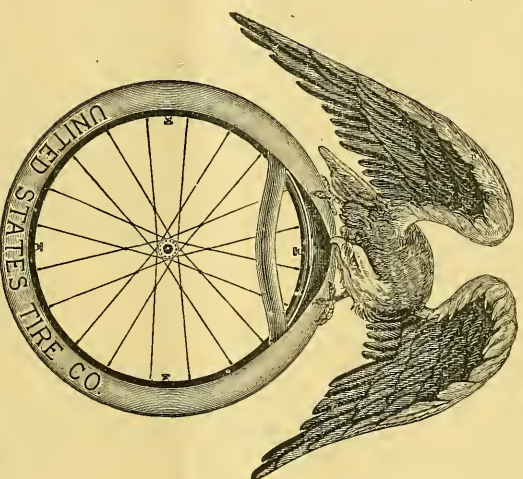
'THE KEATING IS 365 DAYS AHEAD OF THEM ALL.'



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WOOD OR METAL RIMS.

The Lightest Mechanically Fastened Tire.

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Your '95 stock until getting our quotations of the best line high and medium grade wheels in the market. . . .

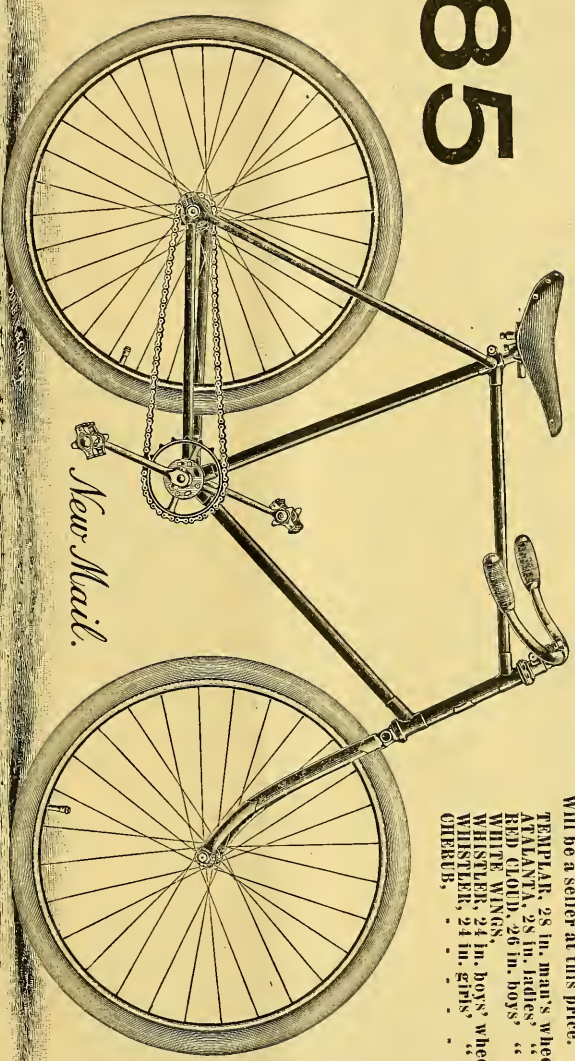
HIGHEST POSSIBLE GRADE.
TWELVE YEARS' REPUTATION.

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Will be a seller at this price. Also

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Wm. Read & Sons,

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Established 1826.
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Beside being the most popular  
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The Cleveland is recognized  
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There are more Cleveland Wheels
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Do you notice that The Cleveland is putting some new marks on the world's record board?

For **HEALTH, PLEASURE, BUSINESS and SPEED**  
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Our reputation is an assurance for

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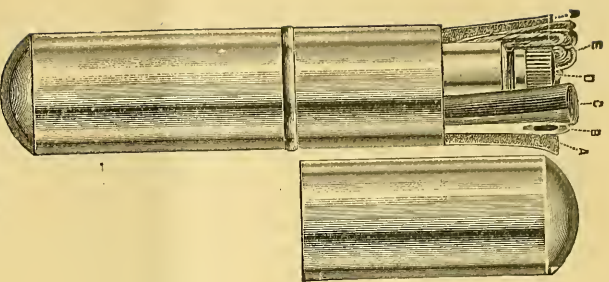
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# MIDGET REPAIR OUTFIT.

Will repair any style tire ever made. Just as essential to the rider as a wrench or an oil can. No wheel is complete without one. What is the use of returning your tire to the manufacturer for repairs and lose one or two weeks' riding in the best of the season, when you can repair your own tire in less than ten minutes' time with our Midget Repair Kit?



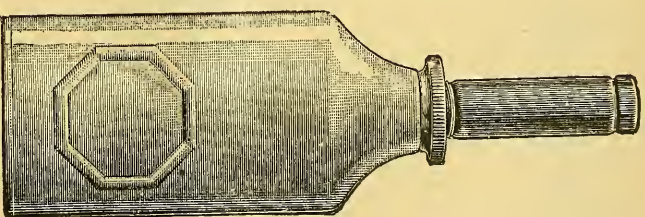
MIDGET REPAIR KIT.

## A Hint to Manufacturers.

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To be sure it costs you something and you cannot get any more for your wheel with a kit than you can without one; but did you ever consider the amount of money you pay out each year for expressage on tires returned to you for repairs? If so, compare this sum with what it would cost you to put a Kit with every wheel, and see how you come out. A Handsome Profit in favor of the Repair Kit.

Special Low Prices to Manufacturers.



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Absolutely Light. Special  
Prices to Manufacturers.

Dealers in BICYCLE MATERIAL OF EVERY DESCRIPTION, including Weldless Steel Tubing; Drop Forgings, either in the rough or all machined; Forksides, Hubs, Rims, Spokes, Nipples, Steel Balls, Cements, Chains, Saddles, Tool Bags; and all sundries necessary to make a wheel complete.

**THE** 

# League Chainless Has Not Won

Any races, because no track racers  
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**.... BUT ....**

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These are the kind of records that tell the best story.

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Simplicity 47 Tires fitted when so ordered.

# Fine Work Will Tell!

You may not be able to purchase a TRIBUNE quite as cheap as some other wheels, but it will give you satisfaction and you will not regret the price.

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are built for the riders, and those who have them are always ready to speak in their praise. The following letter is an example of what is thought of TRIBUNES:

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Gentlemen—I think it is my duty to write and give you the praise which you richly deserve in the manufacture of bicycles. I bought of you about two months ago a Model F (25 pounds) and cannot speak too highly in its favor. I have ridden almost every popular machine, but never saw one that I would exchange mine for. For lightness, easy running and hill climbing, it is far superior to any which I ever saw, also a very handsome modeled and finished wheel. Since buying mine have sold a Model C and the party that has it could not be persuaded to ride any other. Wishing you unbounded success, as your wheels merit, I am

yours truly,

T. M. WILLIAMS.

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And see how it seems to ride a perfect wheel.

The Cycloidal Sprocket will itself be a revelation to you.  
Write for catalogue and apply for agency.

THE BLACK MFG. CO., - - - ERIE, PA.

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An Illuminator,  
not simply a Signal.

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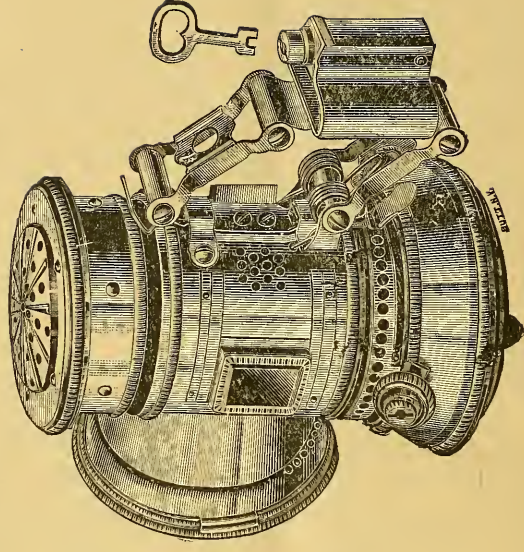


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10 HOURS

(No Special Oil required any more.)

Will not jar out. Always cool, and wick does not char.

The central draft principle; perfect in construction; handsome in appearance. A circular tells all about it. Send name and address and mention "Good Roads."



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which costs the least in the long run—least trouble,  
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That bicycle which is the **strongest, most rigid,**  
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That bicycle which is the **fastest**, that bicycle is  
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The  
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THIS YEAR  
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